

FLIGHT

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EDITORIAL COMMENT



THE recent need for economy by most individuals as well as by nations has certainly tended to cut down the amount of travelling in the past two years. Even private motoring has probably not expanded so much as it would otherwise have done; the railways have certainly suffered; and one would have expected air travel to have shrunk most of all. It is therefore very gratifying to learn from the speech of Sir Eric Geddes at the annual meeting of Imperial Airways that during the past year this company sold over 56 per cent. of the total capacity offered, and this despite the fact that, through using larger aeroplanes and longer routes, the available capacity had very largely increased. The figures which Sir Eric quoted show an increase from 1,600,000 ton-miles to 2,230,000 ton-miles. At the same time the cost per ton-mile has been reduced since 1925 by over 50 per cent. These figures show that Imperial Airways are working steadily towards what Sir Eric called their "object of the commercial emancipation of air transport from subsidies."

One thing may certainly be said in favour of Imperial Airways. They never cease to look for new worlds to conquer. The routes to India and South Africa are now well established, but the company does not rest content with them. The chairman spoke of ambitions to fly on to Australia, and also across the Atlantic to the continent of America. On the extension from India to Australia he spoke with considerable confidence. Negotiations, he said, are in train for that extension next year as an entirely Empire enterprise throughout, and he earnestly hoped that no hitch would arise. Of course his object is "an organisation which is homogeneous and governed by a uniform policy." He gave no hint of how the difficulty with regard to crossing India would be overcome. Hitherto India has been the great gulf fixed between Australia and Great Britain. It is, of course, free for any air line to fly across India, and the Dutch and French lines are doing so. But it still is impossible, financially, for any line to fly anywhere without a subsidy, and India has made

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DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

1932.

- Nov. 3. "Civil Primary Training." Lecture by Mr. H. G. Travers, D.S.C., before R.Ae.S.
- Nov. 4. Central Flying School Re-union Dinner, May Fair Hotel, W.
- Nov. 5. No. 208 Sqn. R.A.F. Re-union Dinner, Carr's Restaurant, Strand, W.C.
- Nov. 10. "Airscrew Design." Lecture by Mr. D. L. Hollis Williams, B.Sc., A.F.R.Ae.S., before R.Ae.S.
- Nov. 12. Reading Aero Club Dance.
- Nov. 18-Dec. 4. Paris Aero Show.
- Nov. 25. Norfolk and Norwich Ae.C. Annual Ball.
- Nov. 26. Comrades of the R.A.F. Re-union Dinner, Harrods'.
- Dec. 1. "The Behaviour of Fluids in Turbulent Motion." Lecture by Mr. A. Fage, A.R.C.Sc., F.R.Ae.S., before R.Ae.S.
- Dec. 2. Hampshire Ae.C. Annual Dinner and Dance.
- Dec. 5. Hull Flying Club Annual Ball.
- Dec. 8. "Air Survey." Lecture by Lieut. J. S. A. Salt, R.E., before R.Ae.S.
- Dec. 10. Maidstone Ae.C. Annual Dance.
- Dec. 14. "Air Power and Disarmament." Lecture by Group Capt. J. T. Babington before R.U.S.I.
- Dec. 14. London Ae.C. Annual Dance at Park Lane Hotel
- Dec. 15. "Airship Development Abroad." Lecture by Sqn.-Ldr. R. S. Booth, before R.Ae.S.
- Dec. 15. "Lessons of the D.O.X." Lecture by Dr. C. Dornier, before R.Ae.S.

1933.

- Feb. 1. "Recent Operation in Kurdistan." Lecture by Group Capt. A. G. R. Garrod before R.U.S.I.
- Feb. 2. "Operation of Aircraft Over Tropical Routes." Lecture by A. Plesman, before R.Ae.S.
- Mar. 22. "Value of Aircraft for Protecting Seaborne Trade." Lecture by Air Commodore E. D. M. Robertson before R.U.S.I.

it clear that she is in no position to subsidise an air line. Her arrangements with the Tata firm for an air line between Karachi, Bombay, and Madras are of the nature of a mail contract rather than a subsidy. Before the economy axe fell, India had proposed to run a State airway from Karachi to Calcutta, but felt herself obliged to abandon that scheme. Possibly Imperial Airways do not regret its abandonment, for such a line would have upset the "homogeneity" which is their object. Some other means must be in course of developing to reimburse Imperial Airways for the cost of flying across India. As for the ambition to fly across the Atlantic, that seems to us to depend on technical developments which, so far as aeroplanes are concerned, are not yet in sight.

The most curious part of Sir Eric's speech consisted of an attack on the income tax arrangements of some of the countries over which Imperial Airways machines fly, and also on the Post Offices of various nations, including Great Britain. In one country, he said, they are taxed on the dividends which they pay in Great Britain, though not a penny of that profit is earned in that country. This, however, seems to be on the way to rectification, though "the machinery of international legislation moves slowly." The charges brought against the Post Offices, and especially our own Post Office, seem to call for official examination, for, on the face of it, air mails appear to be very hardly used. We cannot do better than quote the actual words of Sir Eric Geddes. He said:—

"But, important though this question of double taxation certainly is, in my opinion even greater injustice is being done to civil aviation by the postal administrations of various countries. In saying this I regret that I cannot exclude our own postal administration, although I am

bound to admit that in some respects they are more reasonable than many others.

"The general policy of the postal administrations seems to be that not only is the air mail a luxury to which the public is not entitled without a special payment, but that it is a luxury which is to be taxed in addition. What I mean by this is that the postal administrations generally obtain from the public in air mail fees—and these are in addition to the ordinary 1½d. or 2½d. postage stamp—more, and in many cases much more, than the administrations pay us, as air mail carriers, who take the entire financial risk of the venture.

"I have explained this situation to you before, and our own Post Office certainly did go a little way towards ameliorating that position until Great Britain went off the gold standard, since when the most amazing situation has arisen. Our Post Office charges many other postal administrations for the use of our services in gold, so that, in addition to the profit which they were already making on our services, they are collecting and retaining the difference between the sterling which they pay to us and their gold receipts.

"We claim that our services have been paid for by the users because the services are worth that payment, and, as we are carrying the entire financial risk of the service, we are entitled to the whole of the money paid by others for its use, the Post Office merely being a collecting agent. The Post Office's answer to this is that, as they have to pay a number of other post administrations in gold, they require this additional profit for that purpose. If you think this out for a minute you will see that your service is being taxed by the Post Office in order to subsidise the foreign air mail services. Surely a most amazing situation!

"The Post Office will not consider for one moment making a loss on any of our air mail services, making up that loss from some of the profits on other postal services as is the case with mails carried by surface transport. They say that the air mail services must stand on their own; but, mark you, when it comes to a question of the air mail services earning profits for the Post Office then they say that those profits have to be paid in aid of other postal services that are making a loss."

Air Pilot's 50,000 Passengers

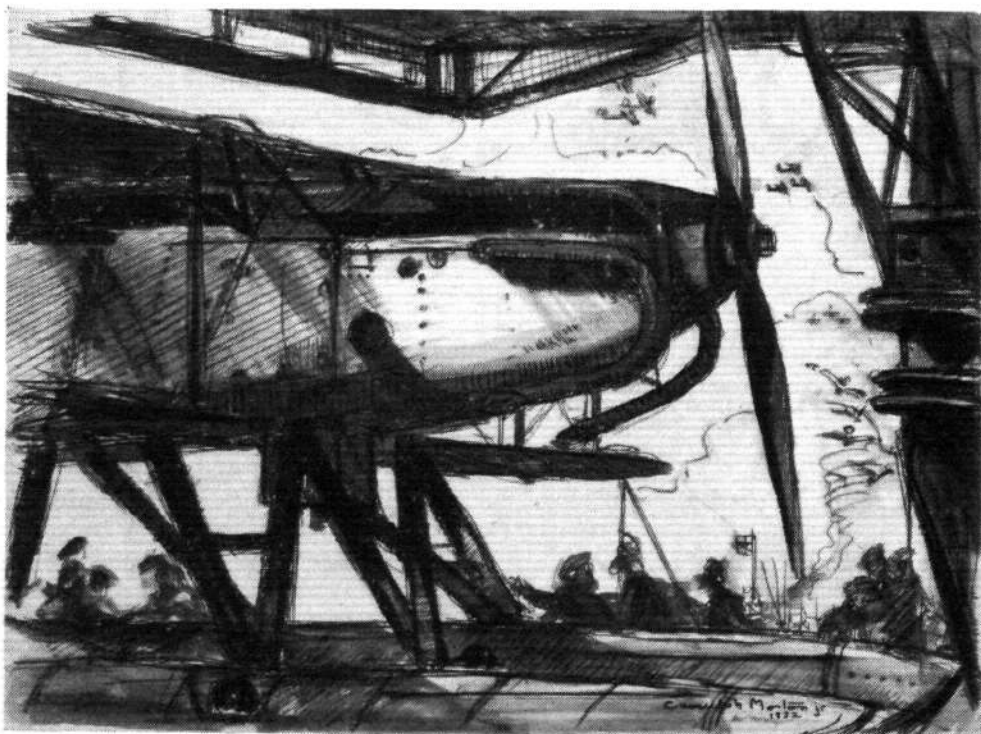
A "WORLD'S record" for the number of passengers transported by one aviator is claimed by a Swede, Capt. Albin Ahrenberg, who has carried no less than 47,703 passengers in his aeroplanes. Capt. Ahrenberg, who is the most popular pilot in Sweden, besides serving on the regular Swedish-Continental air routes, has done more than any other Swede to popularise aviation by his annual propaganda flights. During this year alone he has visited 232

different towns and villages and has carried passengers varying in age from babies of a few months to old men of nearly a hundred years. Throughout these flights he has always arrived practically on the minute, and no single person carried in his machines has ever been hurt. He has also made daring flights across the icy and desolate regions of Lapland and was the chief pilot of the expedition sent to Greenland to rescue the young English explorer, Augustus Courtauld.

EXHIBITION OF DRAWINGS

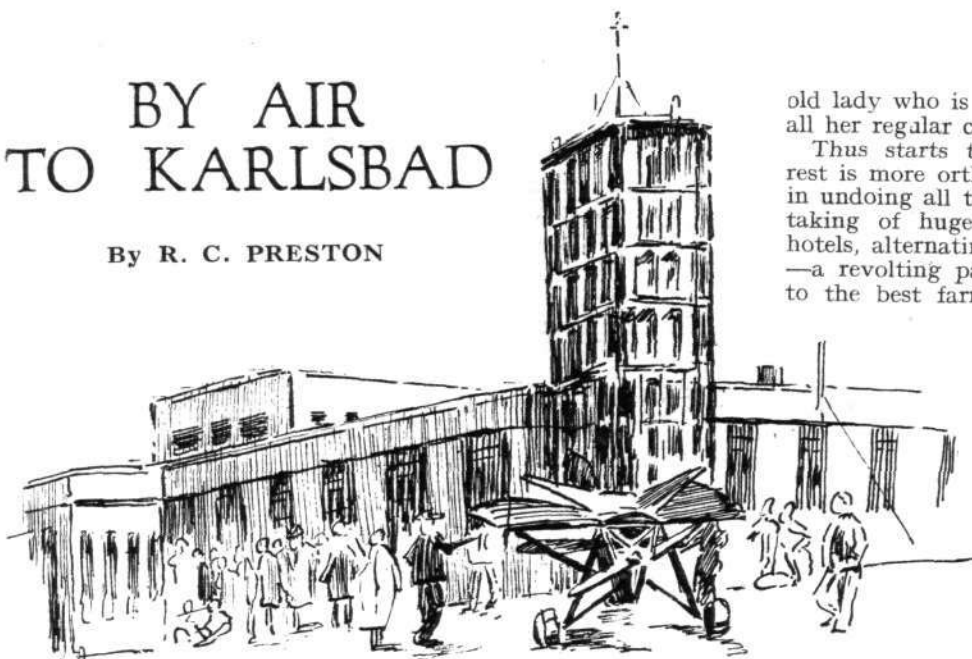
THE spirited drawing which we are reproducing on this page is one of the many which we have selected from a portfolio of works by the Brothers Morton. These gifted young artists are exhibiting on November 9 at Broomhead Art Gallery, 18, Cork Street, Old Bond Street, a number of sketches in pencil, colour and pen of "Planes, Pilots and Passengers." To many of us who are accustomed to look upon aeroplanes as objects precise, hard and mechanical, it will be refreshing to note that these objects may be seen picturesquely and imaginatively. A number of portraits of distinguished aviators will also be included in this exhibition, which will remain open for two weeks.

Reproduced from a colour sketch
by Cavendish Morton.



BY AIR TO KARLSBAD

By R. C. PRESTON



"Palace of Glass and official dignity."

"At Marienbad."

TO those private owners who are keen on Continental touring I can recommend a visit to Karlsbad, in Czecho-Slovakia, as being well worthy of their attention, provided, of course, it is tackled at the right time of year.

Karl Vary, as it is officially entitled, lies tucked into foothills covered with pinewoods overlooking the River Ohre and the stately Erze Mountains, which stretch in a wide curve from Eger or Cheb, as the airport on the frontier is called, eastwards to the more desolate regions of Silesia and Poland.

Karlsbad—for who will ever know it as anything else?—like its neighbour, Mariánské Lázně or Marienbad of Edwardian fame, is essentially a spa founded on the site of a hot spring discovered by one King Carl of Bohemia during a hunting expedition in 1349. This hot spring is now harnessed in various forms to provide treatment for ailing peoples of all nationalities, and its famous "*sprudel wasser*" is guaranteed to cure rheumatism, gout, carbuncles, shingles, apoplexy and "all other ailments."

I tried this cure feeling that no visit could be complete unless in Rome one did as the Romans do. It entails rising early, for all Karlsbad is astir at 6.30, and after watching the procedure carefully one first buys one's little green glass or porcelain mug, made flat to fit snugly into the pocket with the minimum possible distortion of the figure. Armed with this, and perhaps a little bent glass tube to imbibe by, for normal handling by reason of the shape is somewhat hazardous, one approaches a white mackintoshed priestess officiating, with two assistants, at the gurgling, steaming fountain leaping fifty feet or more into the air at the end of the magnificent marble-tiled glass-roofed building.

The priestess takes the glass, and fitting it into a clip at the end of a long bamboo, holds it under the spray until it is full of the tepid beverage. One then somewhat self-consciously saunters off and joins the stream of sipping humans slowly circulating anti-clockwise round the vast pillared hall, while the air is filled with music by the grand orchestra who are at this moment (mind you, 7-8 a.m.) broadcasting to what one presumes must be the wide-awake population of Czecho-Slovakia. Full of interest are these humans, and one wonders if they, too, think you are really in need of this daily purge.

Having drained the glass, one washes it carefully under a fresh-water fountain and strolls slowly back to breakfast at one's hotel. Whether one has to make a call by the wayside depends on the length of time it has taken to sip the "*sprudel*." But everything is well organised, and one need never fear that one will be caught napping, for Karlsbad realises its responsibilities and provides refuges in plenty. In fact, these and the public weighing machines are mere corollaries to the main industry, and if one is playing the game seriously, one goes daily to these weighing-in booths and has one's tally checked by a dear

old lady who is deeply concerned as to the welfare of all her regular customers.

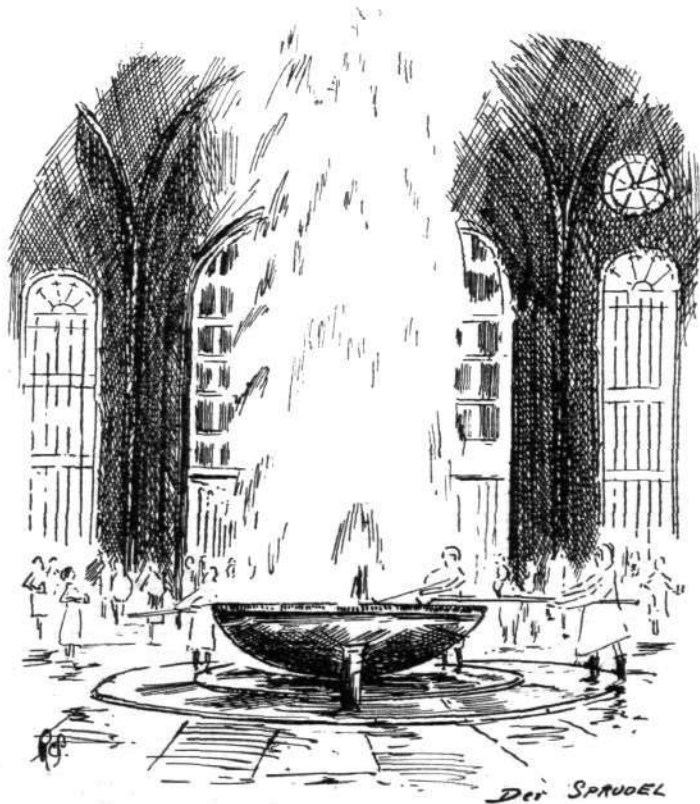
Thus starts the daily routine at Karlsbad. The rest is more orthodox, and usually appears to consist in undoing all the good "*sprudel*" has done by partaking of huge meals provided by quite first-class hotels, alternating perhaps with a course of mud baths—a revolting pastime in liquid, equal in appearance to the best farmyard variety—and a stroll into the pine woods by paths so engineered as to provide the minimum of resistance to gravity.

Anything over a stay of five days involves the "*Kurtax*," a tax imposed by the municipality, which no doubt goes to maintain the dignity of the "*Kurhaus*."

Now, turning to the rather more relevant air part of the story, this being an air and not a medical journal, let me here say that both Karlsbad and Marienbad own most magnificent and complete airports—that is to say, complete in all but one detail, and that is hangar accommodation, in so far as Karlsbad is concerned.

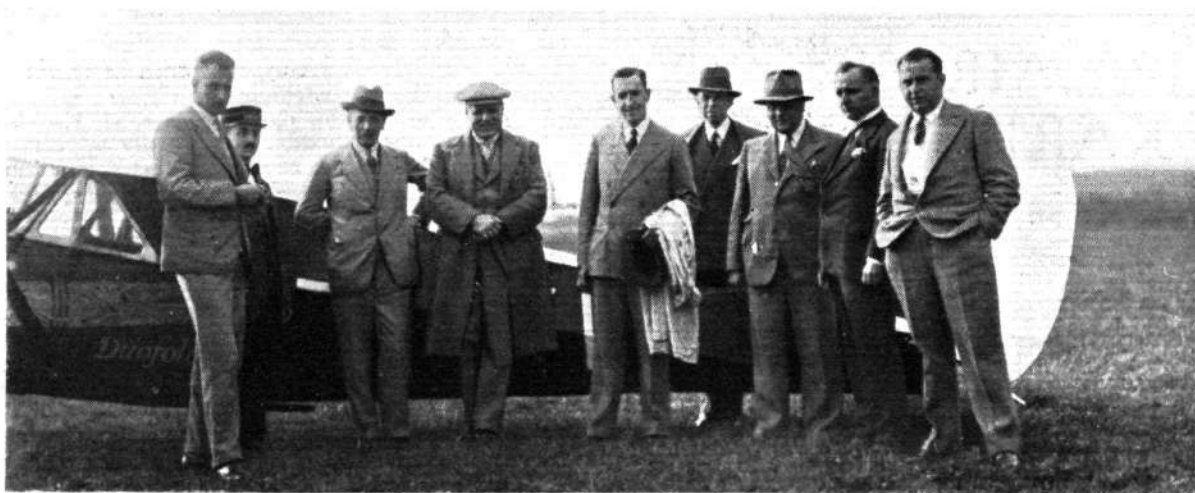
A huge glass tower, offices, vestibules and lavatories, built to accommodate a travelling public equivalent to that found in any large provincial railway station, overlook a very adequate aerodrome. But, with lowering skies and a threatening cloudburst, I personally would have welcomed more secure cover for the "*Parker Pen Puss*" than a couple of heavy tarpaulins, dragged carefully as may be over its folded wings. A Fokker "*F.VII*" of Luft Hansa came in from Chemnitz as dusk fell, but proceeded to Marienbad forthwith, where it knew cover could be obtained. Such is the order of things; one can only think that in Karlsbad they realise the human frame must receive precedence over the air frame, and legislate accordingly.

The occasion of our landing was an important one.



"Der Sprudel."

Being the venue of the annual conference of European distributors of the Parker Pen Co., I had had particular instructions to land my important passenger at 6 p.m., "*juste*," and as we parked our wheels at 5.55, cameras



Flt.-Lt. Preston (left) with some of the Parker officials at the Conference at Karlsbad.

clicked and great reunions took place, as illustrated in accompanying photo. This had been on this occasion a fairly easy accomplishment, as the itinerary shows: Heston-Brussels, 2.05 hr.; Brussels-Frankfurt, 1.40 hr.; Frankfurt-Karlsbad, 1.55 hr. And we had, in fact, found it necessary to dawdle a little at Frankfurt.

The country between Heston-Brussels is too well known to need comment. That between Brussels and Frankfurt is intriguing, with its crossing and recrossing of the Moselle and Rhine at Coblenz, but the country after Frankfurt is not so easy, and rather careful checking-up of railways and rivers is the only aid to an otherwise somewhat barren landscape. Bartholomew's contour motoring map of Germany, Holland and Belgium to a scale of 1:1,000,000, or 16 miles to the inch, is quite adequate, however, provided the position of aerodromes is known beforehand in case of dirty weather round cities whose airports are not within easy reach. Stuttgart is a case in point; and on a visit here later it was well to know that the aerodrome was at Böblingen, some 18 miles south-west of that city.

From Karlsbad several interesting short trips are possible, that most recommended being to Prague, a true gateway to the East, where the artist finds unending scope for impressions of bejewelled spires, gracefully arched bridges and contours of inconceivable beauty. But lucky is he who finds Prague on a fine day.

Marienbad, too, separated from Karlsbad by thirty miles of rolling upland, is a town of pump rooms and flower-bedecked promenades, with the added attraction of a lake having a sandy beach which, from the air, appeared to be a little piece of Southend front on an August Bank holi-

day afternoon. Its airport is a palace of glass and official dignity, boasting a real hangar as well, and one considers how we would add to the attraction of our airport by the addition of *biertgartens*, flower boxes, and bright parasols.

To the private owner I would say visit Karlsbad; stay five days, not more, or the "Kurtax" has you. Unless, of course, you need the cure. And from there visit Prague and return via Munich and Stuttgart. It is a happy, well organised country, and though the language may be difficult—one might almost say impossible—the people are charming, and beer is beer and very cheap. But do not forget to fulfil all the necessary formalities laid down in international conventions.

Also, do not be upset by little difficulties and delays. After an interval for refreshment at one airport I returned to the office to get my papers, and found that they were not ready. After some considerable further delay I inquired the reason, and found a harassed clerk taking the following particulars from my licence:—

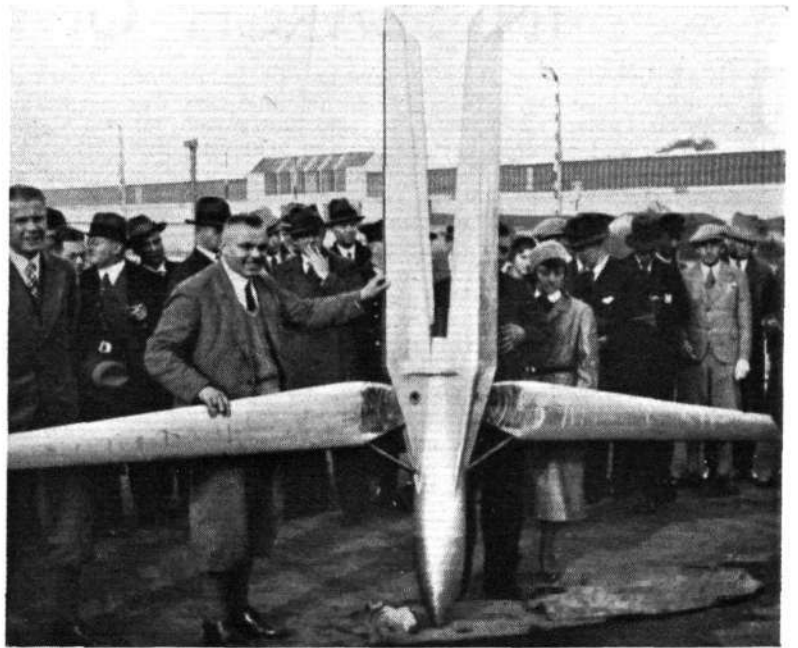
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and so on to date—a little formality which would appear to have been a little unnecessary! Remember, too, that Sundays are observed possibly somewhat more punctiliously than at home, and if one does want the machine out on that day, it is well to make arrangements the day before, or the hangar doors will be locked against one.

However, you may rest assured that they understand aeroplanes in Czecho-Slovakia, and charges are moderate, but it is a State with a high degree of "protection," and Customs are severe in consequence.



THE LATEST TREND: Mr. Lowe-Wylde—as usual pioneering—with his latest venture. He has, for experimental purposes only, added a motor-cycle engine to his B.A.C. VII two-seater and has already done a considerable amount of successful flying with this combination.



AT DEMONSTRATION OF ROCKET : On the left the rocket being lifted out of the car which brought it back from the spot where it landed. On the right the inventor holding the rocket, the wings of which are seen in the spread position.

THE TILLING ROCKET

By EDWIN P. A. HEINZE

WORK on the development of rockets is progressing in Germany, though now in relative secrecy since investigators have discovered undue publicity to be a heavy drawback. The recent unsuccessful rocket attempt by the German inventor, Winkler, on a Baltic island, can only discredit the really serious work this and other scientists are actually doing, and Winkler's attempt to attract public attention, and thereby gain new funds, was very ill advised. Yet, what is being done really merits the attention of all seriously interested in the progress of aviation, and this interest should not be distracted by the fantastic plans of some dreamers who speak of exploring the universe by means of rockets, paying visits to the moon and so on. This may come one day. But that is not the aim followed by serious workers now. Also, from a military point of view, rocket development demands careful attention. One is loath to admit it, and certainly no one in Germany dares openly speak of it, but it is a fact one cannot overlook that rockets may one day become a fearful weapon, able to destroy fortresses, ports and cities from long distances.

At present the situation, however, gives no cause for anxiety on the latter score, for the development is still in its infancy. But a very impressive demonstration was recently made on the Berlin-Tempelhof aerodrome by the German engineer Tilling, of Osnabrück, who has developed a very promising type of rocket body, which can be controlled in the air so that it comes sailing down to the ground like a soarer without doing itself or the landing ground the least damage. The rocket demonstrated by Tilling functioned very well. It is entirely made of aluminium and consists of a central shell body, to which are attached four long tail fins. Its overall length is 3 metres. The rocket tube or rocket motor, as it is called in Germany, which is inserted into the shell between the fin roots, is filled with powder of special composition, securing relatively slow burning. Tilling prefers the use of powder for experimental work since it is cheap and rela-

tively safe. He has developed powder rockets able to burn for almost 2 min. and thus giving a sustained impulse of this duration, which already is a great step forward. The rocket demonstrated was capable of taking a charge of 22 kilogrammes (48.5 lb.) in weight, which will drive it up 7,000 metres (23,000 ft.). To ensure the rocket coming down within the precincts of the aerodrome the inventor could only give it a charge of 6 kilogrammes, which was ignited electrically from a distance and drove the machine perpendicularly 800 metres (2,625 ft.) high. Arrived at the summit of its path two wings sheathed till now in two hollow fins gradually opened out, being actuated by an automatic hydraulic mechanism, which is said to be very simple. The wings can be set so the machine can glide down uniformly either straight ahead or in spirals of greater or lesser diameter. For the purpose of the demonstration, which demanded the machine to come down as close to the starting point as possible, the wings were set to give a close descending spiral, and it came down within 400 metres of the starting point.

Herr Tilling is now building a large machine of Duralumin, which will be provided with wireless controls enabling the operator from the ground to direct the path of the machine in the air and to make it alight at any definite point he desires. Later on a still larger model is to be built of electron. Herr Tilling has realised the deficiencies of powder as motive force for long-distance work and is now experimenting with liquid fuels. These offer great difficulties on account of their danger and the still rather insecure methods for controlling combustion. The inventor's aim is gradually to develop a machine for the transmission of mail across Germany controlled wholly by wireless. This would be the forerunner of a still larger machine carrying a pilot and capable of traversing very long distances.

The machine demonstrated had a wing span of 4 metres and weighed 22 lb. The wing load only amounts to 12 kilogrammes per sq. m. (2.5 lb./sq.ft.).



Palmer Tyre Company's Loss

WE regret to announce that the Palmer Tyre Co. have suffered the loss of their Director, Mr. Christian Hamilton Gray, through pneumonia. Mr. Gray was in his 74th year, and died after a short illness on October 30. With the late Mr. Sloper, he did a great deal of work in perfecting Palmer Aero Wheels and Tyres, and for over thirty years he has actively been engaged at the Silver-town works on the improvement and production of all classes of tyres.

A Model Bomb-proof Shelter

It is reported from Berlin that the Steel Helmets organisation has built a model bomb-proof shelter near the Tempelhofer aerodrome, which will hold 50 people, and is elaborately protected against gas fumes.

The Handley Page "Heyford"

THE Handley Page, night bomber, type H.P.38 (2 Rolls Kestrels), which was flown at the last display at Hendon, will in future be known as the "Heyford."

IN SEARCH OF HIGH LIFT

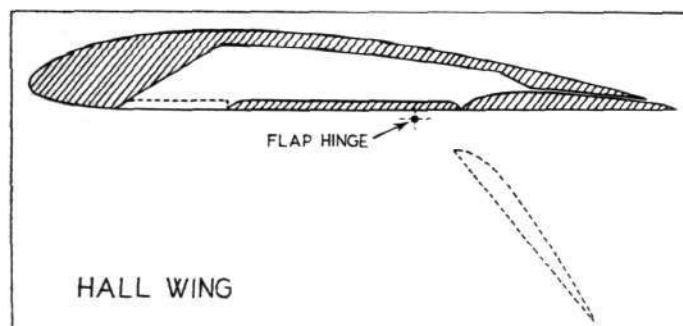
THAT the Handley Page-Lachmann slot is not the only device by which lift can be increased has been known for some time, and the search for other and possibly better means of achieving this end is constantly going on. The variable area wing is one avenue, the variable camber another. Theoretically a combination of all these might be the solution, but obviously this presents very great mechanical difficulties. It is quite sufficiently difficult to make the ordinary fixed wing strong enough for its work, and to combine in one wing variable area, variable camber and some form of slot mechanism is a problem to baffle the most ingenious engineer. That, however, is not a valid reason for not carrying out research in the aerodynamic possibilities which exist, and such researches have been pursued recently by the National Advisory Committee for Aeronautics in the United States of America.

Two attempts to produce very high lift are described in the N.A.C.A. Technical Notes, Nos. 417 and 419. The former deals with wind tunnel tests on a Hall high-lift wing, and the latter with similar tests on a model of the Fowler variable-area wing. The two wing sections are shown diagrammatically in our sketches.

The tests on both wings were carried out in the 7-ft. by 10-ft. wind tunnel, which is of the open-jet type, and at an air speed of 80 m.p.h. The models had a span of 60 in. and a chord of 10 in. (i.e., aspect ratio 6), so that the tests corresponded to a Reynolds Number of 609,000. Both wings were based on the Clark Y aerofoil.

The Hall wing, it will be seen, is essentially a split-flap aerofoil, with an internal air passage through which air enters on the under side and flows out through an opening made by deflecting the rear portion of the lower surface downwards as an aileron flap. For normal cruising and high-speed flight the intention is that the front opening should be closed and the rear flap be up against its counterpart in the top surface, giving in fact a practically normal Clark Y wing.

The rear flap, which was like the main wing of Clark Y section, was hinged to the main wing at a point somewhat ahead of the leading edge of the flap, as shown in the sketch. This left a gap between the leading edge of the

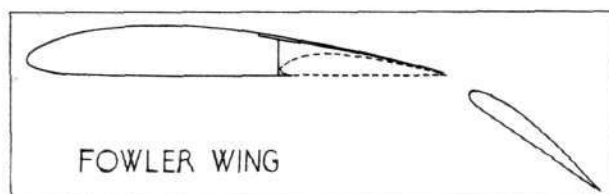


flap and the lower-surface trailing edge of the main wing when the flap was lowered.

Tests were carried out with the flap at various angles, and with the front opening in the surface open and closed. It was found that the highest lift coefficient with front passage open was obtained with the rear flap at about 45 degrees. The value of the maximum lift coefficient was then 2.05 in American units (1.025 in British "absolute" units). With the front passage closed the maximum lift coefficient increased to 2.08 (1.04 "absolute"), at a flap setting of 48 degrees. It is pointed out that the plain

Clark Y aerofoil with the conventional type of flap gave a maximum lift coefficient of 1.95 (0.975 "absolute") for a flap setting of 45 degrees (the flap was 30 per cent. of the wing chord), so that the Hall wing does not appear to offer any worth while advantages over the conventional aerofoil with trailing edge flaps.

Considerably better results were obtained with the Fowler wing, illustrated in our other sketch. This wing



has been developed by Mr. Harlan D. Fowler, and in it an attempt has been made to combine three different methods of increasing maximum lift: increasing wing area by varying the chord; increasing the effective camber by means of a flap, and providing a slot to help maintain unburbled flow at large angles.

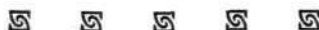
As in the case of the Hall wing, both the main aerofoil and the flap were of Clark Y section, and the flap was so arranged that when not in use for extra lift it could be retracted into the main wing section.

Tests were made with the leading edge of the flap in various positions in relation to the main wing trailing edge. The position which gave the highest maximum lift coefficient was vertically below the main wing trailing edge, and distant from it $2\frac{1}{2}$ per cent. of the wing chord. A maximum lift coefficient of 3.17 (1.58 "absolute") was then obtained (with the flap at 40 degrees), which is believed to be the highest lift ever attained by any device simple enough to be possible of application to a real aircraft. The corresponding figure for the plain wing was 1.27 (0.63 "absolute").

The report points out that if the gross weight is assumed unaffected by the change-over to a Fowler wing, the minimum gliding speed would be decreased to less than two-thirds of the original value. If the original landing speed were desired and the original gross weight maintained, the basic wing could be reduced to 40 per cent. of the original area, and the maximum speed would then be increased by something like 5 per cent.

What the reports do not appear to point out is that both the Hall and the Fowler wings show a very nasty shape of the k_L curve. When the maximum lift coefficient is reached, the curve drops almost vertically to a value of about 1 "absolute," and then slightly less steeply. One would imagine that a wing with such a shape of lift curve would spin like fury, although in a practical aircraft the lift flaps would not, presumably, extend right to the wing tips, where would be the normal ailerons. If, however, that were so, the phenomenally high lift coefficient would not be reached. A cure might possibly be found by fitting the leading edge with Handley Page auto slots.

Another possibility would seem to be to fit Handley Page lift slots along the entire leading edge of the main aerofoil, when the lift might be even further increased. This, however, would entail much greater angles of incidence. The maximum lift of the Fowler wing occurred at a main aerofoil angle of approximately 16 degrees. If leading edge slots were added, the incidence would probably be increased considerably, and the undercarriage problem be further complicated.



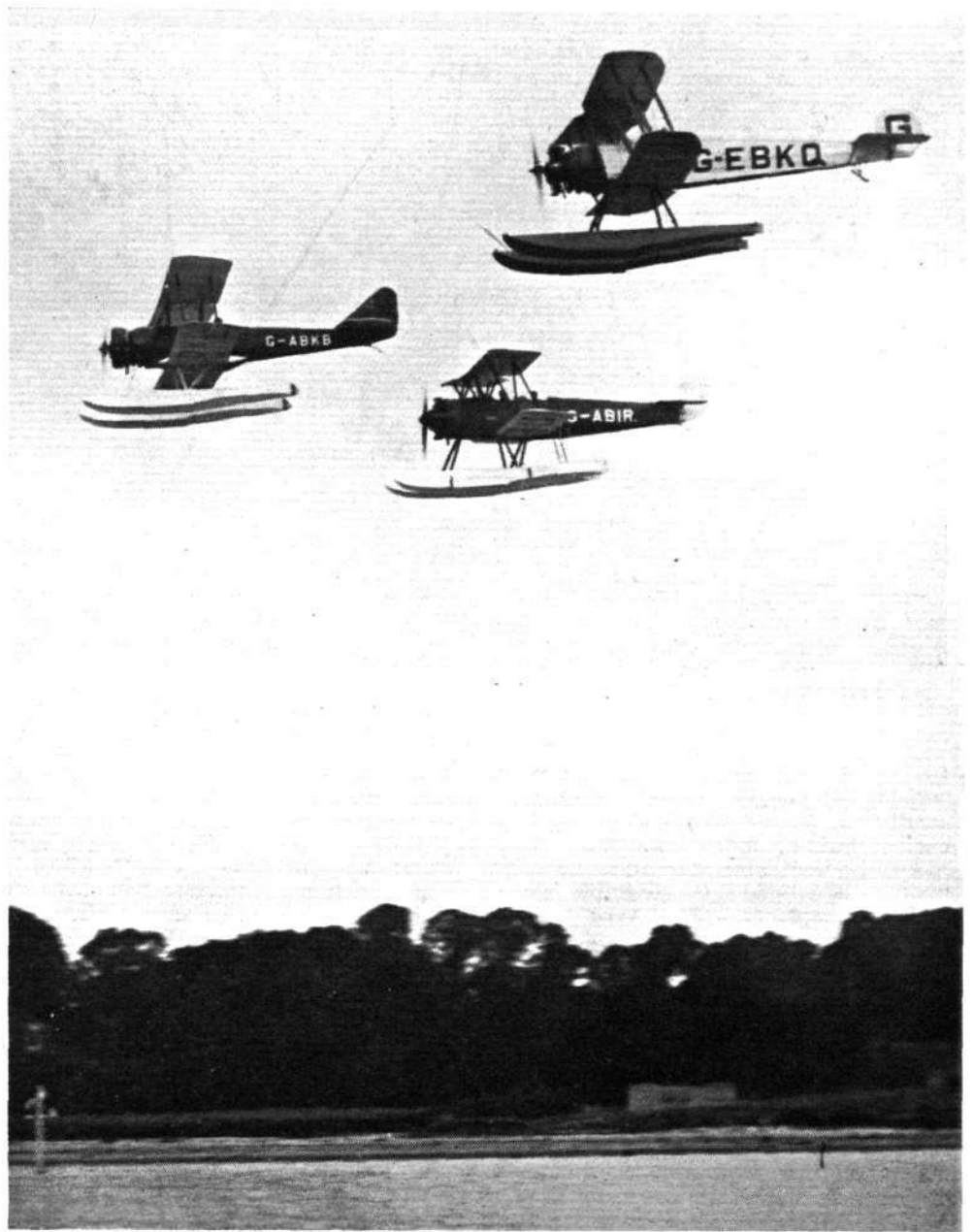
Aeroplane Tyres and Wheels

LECTURING before a joint meeting of the Royal Aeronautical Society and the Institution of the Rubber Industry on Thursday, October 27, at the Royal Society of Arts, Mr. F. Fellowes said that aeroplane tyre equipment was tending to develop along similar lines to that of motor car and commercial vehicle tyres, the use of the high-pressure type being gradually superseded by the intermediate and low-pressure types. In his lecture Mr. Fellowes described fully the essential differences between the high-pressure, low, and extra-low-pressure tyres and amplified his description with a series of graphs showing very clearly the

strength, weight and drag obtained with each type. He showed that the low and extra-low-pressure tyres added considerably less drag to the aircraft than do the high-pressure type. Of particular interest was the new sponge rubber annulus used for fairing between the tyre and disc wheel. This also was proved to be a notable factor in reducing the drag of the wheels, so much so that a wheel with this type of fairing was said to have less total drag than a wheel completely faired in with a "spat." Reference was also made to the Dunlop type of pneumatic brake which was fully described and illustrated in *FLIGHT* for June 24 last.

SEAPLANE TRAINING

IT seems somewhat odd that, although the history of the British Empire is so wrapped up in development of sea transport, yet up to the present the development of seaplanes and flying boats should be so much behind that of land machines. Very few people in the country are owners of seaplanes (one, Mr. Guthrie, was mentioned in *FLIGHT* for October 13) and even the number of privately-owned flying boats cannot be more than half a dozen. Nevertheless, there is a distinct and growing demand for instruction in the handling of seaplanes, but there are very few places where this can be obtained. At Hamble, Air Service Training, Ltd., offer a very comprehensive course of seaplane training which consists of five hours on an Avro 504 hydroplane and then six hours on an Avro "Tutor" or seaplane. It cannot be doubted that the success of a seaplane pilot lies largely in his competency on the water, that is, he must have a very thorough knowledge of seamanship as opposed to merely airmanship, and it is in this connection that the hydroplane is used. This Avro "504," with a Mongoose engine, is sufficiently difficult to handle to make the training interesting, and for occasions when the wind or tide is not troublesome enough, the instructor can increase the pupil's difficulties by disconnecting the water rudders. On this machine pupils are taught launching, bringing ashore, beaching, refloating, taxiing and manoeuvring on the water under varying conditions, use of drags, mooring,



WITH "BOOTS" ON : The A.S.T. seaplane fleet flying over our photographer at Hamble. Left to right, the "Avian," "Tutor," "504." (*FLIGHT Photo.*)



FOR SEAMANSHIP : The good old Avro 504 is sufficiently difficult to handle on the water to teach pupils all there is to know about that side of the training ; it is not used for flying training. (*FLIGHT Photo.*)



AT THE SLIPWAY : A.S.T. have their own slipway at Hamble so that getting their seaplanes afloat does not present much difficulty. (FLIGHT Photo.)

towing, etc. Since this machine is not used for flying training—it can be coaxed into the air under favourable conditions, as our photos show—it is possible to keep the cost of training much lower than otherwise, and, furthermore, the instructor may allow the pupil to take far more liberty than would be desirable with one of the flying training seaplanes. The Avro "Tutor" fitted with an Armstrong-Siddeley Lynx engine makes an admirable training seaplane. It has a top speed of 114 m.p.h. and cruises comfortably at 100 m.p.h. The "Avian" has a 7-cyl. Armstrong-Siddeley Genet Major engine and a top speed of 109 m.p.h. It is extremely light, its take-off is excellent, and it is very pleasant to fly indeed. It is

often said that the cost of seaplane training is exorbitantly high, but critics should realise that the maintenance costs of such training machines are immeasurably higher than those of land machines. The floats themselves may cost nearly as much as the aircraft, while extra precautions have to be taken on every point to guard against corrosion. The course at the A.S.T. school is very complete and ground training is included. This form of instruction teaches the students all the particular methods which are necessary to defeat corrosion. He is also given a course in navigation, the use of charts, systems of buoyage, fog signals, etc. The fee for the complete course on the "Avian" is £80 and on the "Tutor" £100.

Airport News

CROYDON

THE low-lying smoke cloud over London on Monday, October 24, prevented five of the incoming air liners from completing their journeys to Croydon. One, a German machine, and another a French landed at Penshurst, while a Belgian, Dutch and an Imperial Airways liner landed at Lympne. The morning services all reached Croydon, but only one of the afternoon service planes from the Continent arrived, this being a S.A.B.E.N.A. A second S.A.B.E.N.A. plane, which followed one minute later, was unable to get through. Both Imperial Airways 5 o'clock services to and from Paris were cancelled.

Weather conditions on Tuesday were considerably better, and flying was normal.

The main booking hall took on an unusual aspect with the addition of two powerful floodlights and other photographic apparatus, which gave to some extent a studio effect, while a film company were actively engaged the whole of the day making part of a film.

Princess Ingrid's arrival from Brussels on Thursday came as a great surprise. So entirely unexpected was her visit that it was not known at the aerodrome that anyone of great importance was expected until a wireless message was received that the Imperial Airways air liner had left Brussels at 12.27 p.m. with two important passengers, and even then no one realised who was on board. The only person to welcome the Princess was Princess Alice (Countess of Athlone), who had been waiting in her car for about half an hour. It was not until a few minutes

before the plane was due to arrive that the Chief Officer of the aerodrome, Maj. L. Richard, was aware of the Princess's journey. As no definite news had been received at the airport, necessary hasty arrangements were made to receive the Princess. Only a few visitors witnessed her arrival from the roof of the main administration building. Throughout the journey a strong head-wind of 30-35 m.p.h. was encountered, and it was 3 o'clock when the Argosy *City of Manchester* arrived. Princess Ingrid travelled as an ordinary passenger, accompanied only by her lady-in-waiting, and although there were a number of other passengers on board, none of them was aware of her identity. When she alighted from the plane she spent a moment in conversation with Capt. Le Leu, the pilot. Maj. Richard then greeted the Princess on behalf of the Air Ministry, and escorted her to the main hall, where she was met by Princess Alice; they left almost immediately by car.

Among the passengers to arrive the same day by the Deutsche Luft Hansa was the President of the International Chamber of Commerce, who is on a few days' visit to this country.

Mr. Douglas, a pupil of British Air Transport, Ltd., obtained his "B" licence this week and has joined Imperial Airways as a first officer.

Included in the cargoes to arrive by the Royal Dutch Air Lines from Holland on Friday was an Egyptian mummified cat, stated to be over 2,000 years old. It is consigned to an antique dealer in London, but cannot be

delivered to him until the Customs receive a declaration from the vendor that it is not less than 100 years old. The declaration has to be signed in the presence of the British Consul-General in Holland.

As a result of the unfavourable weather conditions which prevailed on Friday afternoon, the pilots of four Bristol "Bulldogs" decided to abandon their flight to Biggin Hill, and landed at Croydon, where they housed their machines for the night. They took off early the next morning and were out of sight in a few seconds.

Every Air Union machine throughout the week has been fully loaded with passengers and freight. On Saturday alone Air Union planes carried 66 passengers and nearly 2 tons of goods.

There was a strong wind blowing across the aerodrome estimated at 50 m.p.h., and heavy rain falling, when the German night freighter, the D.2017, took off at 8.55 p.m. on Saturday. The take-off was good and the plane was travelling at a high speed. It seemed likely that with the strong tail wind it had a good chance of making Cologne in record time. At 9.40, however, an S.O.S. was flashed from the plane, which was estimated to be over the Channel and probably flying above the clouds, as no

position was given. In spite of a thorough search by lifeboats from both sides of the Channel, and although rumours circulated throughout Sunday to the effect that the pilot and wireless operator had been picked up, no definite information has been received up to the time of writing, and it is now thought that Herr Cuno, the pilot, and Herr Drebes, the wireless operator, are lost.

The German night freight machine from Croydon to Berlin had only to be run once more on Monday, October 31, to conclude the service this year. It is, therefore, apart from the probable loss of life, bitterly disappointing that fate should have struck such a blow on the eve of the conclusion of a service which has been 100 per cent. efficient throughout the season.

The Maharajah of Jodhpur, who visited Croydon Aerodrome last week and is spending much of his time inspecting different makes of aircraft, has ordered a Monospar.

Members of the Arsenal football team flew from Croydon on the 12.30 p.m. Imperial Airways 42-seater air liner on Sunday to Paris, where they were to play a match on Monday afternoon, returning by air on Tuesday.

The total number of passengers for the week was 1,218; freight, 54 tons 6 cwts. HORATIUS.

FROM HESTON

BANCO had a charter to Manchester, with one passenger, on Monday, October 24, and left in very thick weather at 9 a.m., returning about 4 p.m. Miss Margery Durant's Sikorsky arrived from Lympe, where it had been detained by bad weather.

Tuesday, October 25.—Flt. Lt. C. Clarkson and Mr. Dudley Page, of Brian Lewis & Co., were early acquainting themselves with the flying capabilities of their demonstration Monospar. Capt. and Mrs. J. Hargreaves cleared Customs and left for Amsterdam, Berlin, Posen and Warsaw in their Klemm G-ABHR. Col. Strange arrived from Paris in the Spartan "Cruiser" with three passengers, on the termination of his Continental tour which started from Heston on October 14. A "Puss Moth" cleared Customs having arrived from Paris, and Capt. Birkett, of Birkett Air Service, Heston, returned from Amsterdam in his "Puss Moth" with two passengers. Flt. Lt. Russell, of Redwing's, called in from Gatwick.

Miss Sale Barker and Miss Page (daughter of Sir Arthur Page, Lord Chief Justice of Burma) left, on October 26, in a D.H. "Moth," owned by the former, to fly to Cape Town. Mr. A. C. J. Irwin and Mr. Gandar Dower also left during the afternoon for Bombay. The Maharajah of Jodhpur visited Heston airport to-day and was very interested in the organisation and demonstrations of new

types of aircraft. He flew in an Autogiro and also in the new Spartan "Cruiser." He is the owner of a private flying club in India and possesses a number of machines.

On Thursday, October 27, Lady Young, wife of Sir Arthur Young, C.M.G., D.S.O., after her last lesson in aerobatics with Capt. Baker, made a short solo flight. She is leaving on Saturday to rejoin her husband at the British Legation, Baghdad. The Personal Flying Services' Junkers landed at Heston with press photographers who had been flying over the Oxford district taking photos of the flooded country.

On Friday, October 28, Mr. Jamar cleared Customs and left for Brussels in his "Moth." The machine looked very smart after its C. of A. and repainting by Airwork, Ltd., Service Department. Mr. Ten Bos cleared Customs and left for Rotterdam in his Comper "Swift." Miss Winifred Spooner left for Leicester in a "Puss Moth."

Saturday, October 29.—Another new pupil joined the School and one qualified for his "A" licence.

Sunday, October 30.—Customs clearances commenced at an early hour—Sir P. Sassoon's "Puss Moth" leaving at 8.45 a.m. for Paris, piloted by Mr. Ellesmere, but returned after reaching Lympe owing to the wind. Capt. Birkett left at 9.5 a.m. in his "Puss Moth" with two passengers for Amsterdam.

MANCHESTER AIRPORT'S WIRELESS STATION

AN important advance in the development of British civil aviation is marked by the announcement that the Marconi Company is to erect on behalf of the Air Ministry a wireless station at the Manchester Corporation Aerodrome at Barton Moss. The station will be controlled by the Air Ministry and manned by Air Ministry personnel. This will be the first fully-equipped wireless station to be erected in a municipal airport for the use of civil aviation services, and is an indication of the progressive policy of officially fostering provincial air services in the United Kingdom.

A complete Meteorological Office for the issue of weather reports will be established simultaneously.

The wireless station, for which the buildings are being provided by the Manchester Corporation, will have sufficient power and range to communicate with aircraft making the Irish Sea crossing to Belfast or Dublin, as well as over a wide area of north-west England and Wales, and the Midlands.

Various classes of wireless service that have proved to be of value to aviation will be provided by the Manchester Aerodrome Station, including ground-to-air communication by telephone or telegraph, meteorological broadcasts, wireless direction finding, and inter-aerodrome services.

The wireless equipment to be installed, all of which is of the most modern design, comprises a Marconi ground station transmitter of approximately three kilowatts

power input, and a direction finding receiver. It is expected that the work of installation and testing will be completed by the spring of next year.

The transmitting station will be erected at a distance of about a mile from the aerodrome at Barton Moss, and remotely operated from the control room at Barton Moss. This is to obviate any possible danger to aircraft using the aerodrome on account of the two 100-ft. masts and the aerials of the transmitting station.

The transmitter is designed to operate on wavelengths between 700 and 1,550 metres, which include all the medium wavelengths allotted by International Convention for civil aircraft communications. In order to make the installation particularly applicable to the needs of civil aviation, provision is made for rapid switching to any one of the five wavelengths required for the various ground station services, so that the operator in the control room can select instantaneously the appropriate wavelength for working in accordance with the demands of the moment.

The circuits, which are contained in all-metal panels, consist of a master oscillator, one stage of power amplification, and a coupled aerial circuit. Communication can be maintained on continuous wave or interrupted continuous wave telegraphy, or on telephony.

The Manchester Aerodrome receiver will be of a similar type to that used at the London Airport, Croydon, known as the Marconi R.G.14. These instruments have proved very reliable for general communication and direction finding services on the Bellini-Tosi system.

Air Transport

IMPERIAL AIRWAYS LTD.

ON October 25 the Eighth Ordinary General Meeting of Imperial Airways, Ltd., was held at the Hotel Victoria, Northumberland Avenue, London. Sir George Beharrell presided in the absence, through illness, of the Chairman, Sir Eric Geddes, and the Directors' Report and Accounts having been disposed of, Sir George Beharrell read the Chairman's speech, extracts from which we give below.

Sir Eric first dealt with the financial position—to which we briefly referred in our issue of October 20—and stated that although in the forecasts and estimates made several years ago the year under review was not expected to be a highly prosperous one, it was indeed fortunate that improved methods and organisation had enabled them to meet in the year under review some of the extra and unforeseen leanness resulting from the various causes already explained (fleet replacements, etc.). As the figures given in the report show, the current year's operations to date were sufficiently satisfactory to justify a certain degree of optimism.

Regarding the company's operations, Sir Eric referred to the introduction of the new *Heracles* class aircraft, simultaneously with which were introduced considerable improvements in the standard of service, particularly in regard to the catering department. The results had fully justified the bold policy of the board in embarking upon the larger size of fleet unit and the higher standard of service.

Sir Eric, in reviewing the Empire services, said that the re-equipment with the new 4-engined type aircraft, etc., showed improvement in the traffic on the England-India service. He also referred to the change-over of the Persian Gulf route to the Arabian side, already noted in FLIGHT. As regards the England-Africa service, he pointed out that he was unable to give any figures of value since it had only been in operation as a through service for about two months of the year under review.

Referring to the introduction of the *Atlanta* type of aircraft on this route, Sir Eric said: "I am seizing the opportunity of the *Atlantis* being moved to take up station on the Cape to Cairo route, to travel over it myself from end to end, in company with the managing director, Mr. Woods Humphrey.

"We will be able to run to a schedule which will afford time, as may be necessary, for inspection and discussion at various points, and I am particularly glad of the opportunity which will be afforded me of paying the respects of the board, and proprietors of Imperial Airways, to the representatives of those Governments who support the service and who co-operate so magnificently in making it a success."

As on previous occasions, Sir Eric gave some interesting statistics. During the year under review the company's aircraft flew 1,722,000 miles, compared with 1,296,000 miles in the previous year. The revenue traffic amounted

to 1,252,000 ton-miles, compared with 901,000 the previous year. They actually sold 56.2 per cent. of the total capacity offered, compared with 56.8 per cent. in the previous year—a very satisfactory figure considering the general falling-off in travel statistics all over the world and the fact that the capacity offered increased from 1,600,000 ton-miles to 2,230,000. As to regularity, services cancelled on account of weather amounted to 2.89 per cent. of the scheduled services, compared with 5.32 per cent. the previous year and 23 per cent. in 1924-25, the first year of operation of the company. The route mileage operated by regular services was now about 12,000 miles, and they were flying on an average nearly 6,000 miles per day.

Regarding the progress made in the economics of air transport, comparing 1932 with 1925, it was seen that the average cost per ton mile on the European services, including every item of expenditure, was slightly less than one-half of what it was seven or eight years ago. On the other hand, fares had been reduced, so that not all of the saving in cost was a net gain. They could never achieve their object of the commercial emancipation of air transport from subsidies if they confined themselves to carrying a small volume of traffic at relatively high rates. They set out, therefore, to increase the volume of traffic as well as decrease the cost of operation, and the former had been achieved in no less marked a degree than the latter. The top of the ladder, said Sir Eric, was still well above them, but they were making steady and continuous improvement in the amount of traffic carried, in the revenue earned, and in their methods and costs of operation. They had, however, to be continually on their guard against adverse action from one quarter or another. Some Governments saw in their strategic position an opportunity to levy, in one form or another, payments from them or to place onerous obligations upon them before they received the ordinary freedom which was accorded to ships of all nations trading in the ports of the world.

In one country they were actually taxed on the dividends paid in this country, even though not a penny of that profit was earned in that foreign country.

"But," added Sir Eric, "important though this question of double taxation certainly is, in my opinion even greater injustice is being done to civil aviation by the postal administrations of various countries. In saying this I regret that I cannot exclude our own postal administration, although I am bound to admit that in some respects they are more reasonable than any others." Sir Eric proceeded further on this subject, as already reported in our leading article this week.

Sir Eric concluded his speech with references to the Empire services, the possible extension to Australia, and the Atlantic service—upon which latter they had devoted and still were devoting a great deal of study.

New Air Liners

A NEW fleet of air liners is to be placed on service by the Air Union. They will be a new type of Breguet, with a higher speed than the present machines, and will carry 10 passengers. These machines, we are informed, are not intended to compete with Imperial Airways, but to speed up the service between Croydon and Marseilles.

The Isle of Man Services

IN our issue of October 6 last we published a paragraph stating that the *Saro "Cutty Sark,"* operated by British Amphibious Air Lines, Ltd., between Liverpool and the Isle of Man, had been flown back to Cowes. We regret that we got somewhat confused with the two concerns running air services to the Isle of Man, and the "*Cutty Sark*" in question, piloted by Flt. Lt. T. Rose, was not that of British Amphibious Air Lines, Ltd., but that operated by Flt. Lt. Rose and Mr. Campbell Shaw. "*B.A.A.L.*," it may be noted, were the first to operate a service to the Island, having started a regular service from Blackpool last March. They, too, have just closed down for the winter spell, after a very successful season,

and hope to do even better next year, negotiations for a bigger machine being in hand with this object in view.

Irish Free State and Air Mails

AT the opening of the new session of the Dail (Irish Free State Parliament) last week, Mr. O. Grattan Esmonde asked the Minister for External Affairs whether any agreement had been arrived at between the Governments of Canada, Great Britain and the Free State with regard to the aerial transport of mails to and from liners calling at Queenstown, in connection with the mail service between Canada and Europe. President De Valera replied that every avenue in connection with such an arrangement had been explored, but no agreement had been reached.

New Issue of Air Mail Leaflet

THE Postmaster-General announces that the Winter edition of the Air Mail leaflet, giving particulars of the Air Mail services available on and after November 1, has now been issued. Copies of the new leaflet are being sent to regular users of the service and can also be obtained free of charge at any Post Office.

From the Clubs

FLYING IN NEW ZEALAND

New Zealand, though generally looked upon by people in England as a country not particularly suitable for flying, is in point of fact going ahead quite steadily in the development of its flying clubs. Martinborough, although a town of some 1,000 inhabitants, is a typical example of the keenness which exists in New Zealand. This town was the first settlement in the Wairarapa district to take a keen interest in flying. After several aircraft had used a local piece of ground regularly, a band of enthusiasts got together and constructed a hangar from materials largely donated by local storekeepers and citizens, the whole of the labour being voluntary. This building is now finished and has room for four light aircraft. Then Marston, which is the largest town in the Wairarapa district, has established a really flourishing club with an up-to-date hangar of which club Martinborough has become a branch. F/O. Buckeridge, the club instructor, instituted during the summer months a series of flying picnics. These are well attended and go out to a temporary landing ground in some isolated part of the district. Here the surrounding farmers flock in their cars together with their wives and daughters, who look after the commissariat part of the picnic. The visitors are usually kept hard at work giving joyrides most of the day—the Maoris particularly being very fond of flying. During her visit to New Zealand, Fräulein Elli Beinhorn landed at the Hood Aerodrome, Marston, after flying from Wellington in one of the club machines. The period of economic depression about which we have heard too much now seems to have passed, and everywhere there is a keen interest being taken in aviation in New Zealand.

LINCOLNSHIRE AERO CLUB

It is hoped to commence flying instruction on the new aerodrome of the Lincolnshire Aero Club within the next few weeks. This is situated at Holton-le-Clay, some four miles south of Grimsby. It is an excellent site of about 60 acres in extent with an east-to-west dimension of 600 yd. and north to south of 700 yd. Work is now going ahead with the preparation of a clubhouse, aerodrome buildings, etc. The official opening of the aerodrome will take place on Whit Monday, June 5, 1933.

LONDON AEROPLANE CLUB

Mr. Tangye, the London Aeroplane Club's Assistant Instructor, gave an aerobatic display during last weekend at the Royal Naval College, Dartmouth, in his Comper "Swift," and followed this up with a lecture in the evening on "The Work of the Civil Air Pilot." The club's annual dance will take place at the Park Lane Hotel on December 14. Tickets, which can be obtained from the Secretary, are 30s. double and 17s. 6d. single.

READING

High winds prevented flying a great deal during the week, causing a rush of pupils to the Riding School run by Miss Eve Rayner. During the week representatives of the Japanese and Chinese governments attended the aerodrome for a demonstration of parachute jumping by Mr. Ward. On Sunday a contingent from Brooklands, including Capt. Duncan Davis (Comper "Swift"), Mr. Ledlie (Junkers), Mr. Thorn and Mr. Walters ("Moths") visited the aerodrome for tea. The workshops have been very busy lately, and the Countess de Looz-Corswarem's "St. Hubert" (Walter), which was damaged earlier in the year while she was on a visit to this country, is now practically ready for her to take back to Brussels.

MAIDSTONE

The visit by the Surrey Aero Club from Gatwick, on October 30, had unfortunately to be postponed. On November 6 the club will be holding their monthly At Home, on this occasion, particularly to welcome the new manager, Mr. M. Spencer.

In the evening the club will hold the usual Sunday dance. On December 10 the first annual club dance will be held. Those requiring tickets should apply to the Secretary forthwith, particularly those who require places in the motor coach which will be leaving London in the evening at 6 p.m.

BROOKLANDS

The recent reduction of fees for the winter period has attracted a large number of pupils to Brooklands, with the result that the amount of flying being done has gone up considerably. Capt. Davis, after a visit to Maidstone Airport on the previous Sunday, was forced to leave his "Fox Moth" at Penshurst owing to the weather. This was collected in the early hours of Monday morning by Messrs. Thorn and Ruutz-Rees, who flew down in one of the club "Moths" and returned in formation. Mr. Van Marken recently took Capt. Davis in his "Puss Moth" on a seven days' tour of the continent, and this machine is now in the workshops being re-painted in the excellently appointed dope shop which they have there. Mr. Shuttleworth, a well-known racing driver, has been doing a great deal of flying lately. He has his own workshop at Brooklands and another on his private landing ground at his home. Journeys between the two are now made entirely by air. Mr. Henry Vaughan, a former pupil of the school, has now acquired a new Gipsy III "Moth," which he is taking back with him to his ranch in Columbia. A gigantic bonfire will be the chief feature of the children's party which has been arranged for November 5. Over 1,000 youngsters are expected, and after dark there will be a firework display. The families of the aerodrome staff or anyone connected with the track will be admitted free. A dance is being arranged to follow up the party for those "who have reached their second childhood"! An amateur theatrical society has been started at Brooklands under the supervision of Mr. Arthur Woods. The first performance will be held at Christmas. Work has now been started on the new hangar for the College of Aeronautical Engineering, wherein the students will not only get practical experience on the rigging and assembly of aircraft, but also actually make parts, which it is hoped will subsequently be built into airworthy machines.

SEEING MADRAS FROM THE AIR

The club's first attempt to provide "joy rides," taking off from the very heart of the city, proved very successful, as a large number of people took advantage of the facilities offered and saw "Madras from the air" at a small cost of Rs.5. With the permission of the military authorities, the Island ground was used as an aerodrome, an easily accessible centre, from where it is said the first aeroplane to fly in India took off twenty years ago. From early in the afternoon huge crowds gathered on the ground.



A GROUND DEMONSTRATION: The new Gregory-Quilter parachute has a very quick acting pilot chute, as shown in our photograph. It will be seen that the pilot chute is well clear of the pack, although the covering flap has not had time to fall right down. (FLIGHT Photo.)

Three machines were kept engaged in giving "joy rides." At the conclusion of the "joy flights," the pilots of the Madras Club gave a demonstration of stunt flying, which thrilled the spectators.

If necessary permission can be secured for the use of the Island ground as an aerodrome. The club proposes to repeat this successful experiment, and afford frequent opportunities for the general public to acquire "air-mindedness."

BOMBAY FLYING CLUB

The Bombay Flying Club, Ltd., has issued its fourth annual report. The membership of the club at the end of March, 1932, was 268. During the year 22 pupils qualified for their "A" licences. Joy-riding has been very popular—altogether 431 hr. flying have been done at Juhu, Bikaner, Jodhpur and other places. Cross-country flights have been undertaken—the greatest amount for any month was 178 hr.

Operations of the club resulted in a loss of Rs.17,000—this was chiefly due to the necessity for building up the Insurance Fund, which had been guaranteed by Sir Victor Sassoon to a figure of Rs.20,000, in pursuance of the arrangement which was made when this fund was established.

NATIONAL FLYING SERVICES

Bad weather has greatly restricted flying at all N.F.S. clubs during the past week. Nevertheless night flying was well patronised at Hanworth on Wednesday, October 26, when four pupils were given dual instruction. At Hull arrangements have been made for a series of lectures to be given throughout the winter. On Novem-

ber 3 Flt. Lt. N. Comper will speak on the "Development and Construction of Light Aeroplanes." On November 17 Mr. Kier Smith will lecture on "The Napier Lion Engine." On November 5 and 19 two club dances have been arranged, the former to be preceded by a firework display. The annual club ball will be held on December 5.

HOW TO BE AN AIRMAN

Possessing the innate faculty of selective and instinctive discrimination we are reprinting the following gem from "The Scottish Flyer," the Journal of the Scottish Flying Club. We can only hope that the Australian authority concerned will be able to harmoniously and selectively adjust the grammatical equilibrium of the complex statement:—

"The qualities needed by a successful airman have at last been precisely analysed and clearly expounded. At a flying school in Australia notice was recently given to applicants for admission that they must first give proof of possessing inherent flying ability. Some of the candidates wanted to know in what this ability consisted. They were then told that—the pilot must possess the innate faculty of selective and instinctive discrimination of the stimuli of the sensormotor apparatus to harmoniously adjust metabolic changes in physiological equilibrium in such manner as to comprehend and assimilate instruction in the attributes essential to perform the intricate and complex operations which constitute the details of pilotage."

[Anyone who can understand this will doubtless find the intricate movements of a joystick mere child's play.—Ed.]

IN A SPARTAN "CRUISER" TO ATHENS

MR. JOHN LORD and Mr. J. de C. Ballardie, Directors of Spartan Aircraft, Ltd., piloted by Col. L. Strange, have recently made a flight to Athens and back via Belgrade. In FLIGHT for October 27 we were able to record their progress as far as Belgrade. Since the date of that article, however, further information has come to hand, and we propose to amplify to a certain extent the details of the trip thus far, and also to follow the party to Athens and back again to England.

Schedule adhered to

The trip was carried through to a definite schedule, despite the execrable weather. This ability to hold to the schedule brought out the undeniable fact that for a trip like this a three-engined machine of this nature was probably the only type with which it could safely have been done. Demonstrations both at Belgrade and Athens were made before, not only civil, but also Air Ministry and Military authorities. In both cases satisfaction, not to say astonishment, was shown by those for the benefit of whom these demonstrations were performed.

As we have already recorded, the start was made on October 14 from Heston at 11.30 a.m. The visibility was bad and *en route* for Paris it was found necessary to turn back in the neighbourhood of Abbeville to make a forced landing at St. Inglevert. After a halt there while the storm passed over, the journey was continued to Le Bourget at 3.50 p.m.

Weather-Bound in Paris

From then, ensued an enforced three days' wait at Le Bourget owing to the fact that the weather over the Vosges and the Black Forest was quite unsuitable for flying. It is true an abortive attempt to proceed was made on October 16, but low cloud in the valley of the Marne made it impossible to get farther than Meaux, so a return to Le Bourget was necessitated. Col. Strange, in his account of the trip, pays great tribute to the way Imperial Airways ran their 42-seaters throughout this period of bad weather, and to the fact that they were

LOG OF THE FLIGHT				
Date	Course	Miles	Time	
Oct. 14	Heston-Le Bourget ...	228	hr. min.	1 50
17	Le Bourget-Munich ...	423	3	15
18	Munich-Belgrade ...	370	3	50
21	Belgrade-Athens ...	570	5	35
23	Athens-Pisa ...	862	7	40
24	Pisa-Paris ...	712	7	10
25	Paris-Heston ...	228	2	20
Average speed 113 m.p.h. ...		3593	31	40

running to capacity, so much so that on occasion the machines had actually to be duplicated. On October 17 conditions improved slightly, and a take-off was made at noon. Conditions over the Vosges were still bad, but a gap was found at Saverne, while the Black Forest mountains were negotiated in the region of Strasbourg. Many attempts were made to find a way through the low cloud and stormy conditions to Munich, but this was found to be hopeless, and eventually a landing had to be made near Starnberg. Here the local Mayor, a fine type of German landowner about 70 years old, gave every help, and the following morning, round about 9 o'clock,

he flew in the "Cruiser" over to Munich aerodrome, where he vouched for the fact that the landing at Starnberg had not been made with the intent of dodging Customs or any other unlawful action. At Munich the party met Herr Kronfeld, the well-known Austrian gliding expert. He was of the greatest assistance, particularly in obtaining a weather report wherein it was stated that a following wind would be found at 12,000 ft.

Munich to Belgrade

Munich was left at 11.50 a.m., and the journey to Belgrade made in excellent weather conditions. From an altitude of 10,000 ft. the view of the Austrian Tyrol on the right, with the Danube on the left, was really wonderful, while Vienna could just be seen far to the north. The following wind, as forecast by Herr Kronfeld, held until the Danube was crossed again, but then it developed into a slight head-wind, which was maintained until Belgrade was reached. At the aerodrome the "Cruiser" was welcomed by Col. Stravesky and Mr. "Tommy" Mapplebeck, the Yugoslav agent for Spartan Aircraft. The following day was spent in demonstrating the "Cruiser" to officials of the Aeropot Co. The next day, October 20, was devoted to tests and demonstrations made for the benefit of the Air Ministry. The machine was weighed most carefully and loaded up to the full 5,100 lb., stop watches and barographs were carried, take-off and landing runs measured. A novel suggestion, made by Mr. John



AT BELGRADE : Mr. Jojkitch ; Mr. Ballardie ; Mr. Mapplebeck ; Capt. Markitchevitch, President of the Military Commission ; Col. Strange, and three other members of the Commission. The party on the right includes, facing the camera, Lt. Col. Tomic, Commandant of the Belgrade Aerodrome, who is understood to be the senior pilot to have flown on active service in any Air Force in the world. (Balkan War, 1912, in a Blériot.)

Lord, was here carried out ; the flying tests being made by numbers. For this purpose each of the Commission in the machine was given a copy, in their own language, of a schedule designed to show the flying characteristics, not only with full engine power, but also with any combination of the three engines. This system was carried out not only at Belgrade, but also at Athens, at which place the machine was still climbing comfortably at 9,000 ft. on two engines only. Throughout the whole journey the mountainous nature of the country emphasised the advantage of this type of machine and vindicated the principle of the Spartan Company, which is: safety first, with speed and pay load second. Under such conditions no multi-engine machine is considered safe unless it can climb to at least 6,000 ft. on two engines and easily maintain that height in bumpy conditions with full load.

Belgrade to Athens

At dawn the following morning (October 21) Mapplebeck, true to his reputation for punctuality and thoroughness, chased the party out of their hotel, thus enabling them to make a take-off as the sun was rising from behind the mountains. A head-wind pulled the cruising speed down considerably on this leg, so that the 376 miles to Uskub took 3 hr. 45 min. It was therefore decided to break the journey at Salonika to refuel both men and machine. Incidentally, at this point a K.N.I.L.M. Fokker and a Greek Airways Junkers passed. The next stage to Athens was taken via the Airways' winter route, as the weather reports ahead were bad. The airport authorities were somewhat concerned for the safety of the machine, as the district was bad for anyone who did not know the route thoroughly. As Col. Strange remarks, Greece seemed to be all either, mountains and sea or just sea and mountains! Tatoi aerodrome at Athens was reached in 1 hr. 50 min. from Salonika, and here the Shell service proved even better than usual (which is saying a great deal). The local agent, M. Hauthopoulos, spared no effort to make everything easy. Athens seems to be a "Charing Cross" of the air, with the Hotel Grande Bretagne the centre of all aerial activity. Here were to be seen the Captains of all the various air liners dining at the head of the tables of their respective passengers—Imperial Airways, K.L.M. Greek Airways, etc.

Athens, as a change from hitherto, was really hot, and the following day, October 22, was spent in beautiful weather demonstrating to the officials of the Air Ministry and Greek Airways. These demonstrations were carried out on the same lines as at Belgrade, and once more the Spartan "Cruiser" behaved perfectly.

Athens to Pisa

On October 23 a start had to be made back to reach

Heston in time for another demonstration, and it was therefore necessary to do something over 2,000 miles in three days if this appointment was to be kept. As soon as the sun rose, a start was made for Brindisi, and up the Gulf of Corinth a little better speed was made than the Imperial Airways' "Scipio" flying boat. Corfu was passed at 9 a.m., and Mr. John Lord sighed for a magician to change the "Cruiser" into one of his Saro "Clouds"! A pleasant feature of the Spartan is the ease with which it is flown, and on this leg particularly it was possible to fly for hours at a time without any attention to the controls. Such a characteristic naturally, very greatly lessens the fatigue of the pilot. Visibility was wonderful whilst crossing the Adriatic and the shores of the heel of Italy were in sight ahead, with even the Bay of Taranto beyond, before mountains of Albania had disappeared behind. Brindisi was reached in 3 hr. 25 min., and here the first serious delay since leaving France was experienced ; neither Customs officials nor fuel being available until the authorities, some six miles away, had successfully been summoned by telephone. It was therefore impossible to leave until some three hours had been wasted. The non-stop flight via Rome to Pisa was over a district of marvellous scenery. Rome itself was unfortunately blotted out with heavy cloud, and for the same reason it was impossible to see either Vesuvius or Naples, but the majority of the journey was accomplished in excellent weather. At Pisa the crew of the "Cruiser" were most hospitably received by the Italian Air Force and clouds of mosquitoes, whose attentions were all too personal.

Pisa to Paris

The next morning, October 24, a start was made at 5 o'clock from the hotel, and the aerodrome left shortly after dawn. One hour's flying sufficed to reach the shores of the Riviera, where San Remo, Mentone, Monaco and Nice were all bathed in sunshine (Mr. John Lord was again heard to sigh for a Saro "Cloud"). Turning up the Rhone Valley, Lyon was reached after a four hours' flight, and once more complicated regulations lost the party two hours before they were enabled to take off for Paris. Continuous rain, low visibility and a gale of wind made the trip on to Le Bourget a very sticky one, taking three hours to complete. In fact, it was only through the good offices of a pilot of the Rapide Azur line, who directed Col. Strange through a gap in the hills southwest of Lyon, that they were able to make Paris at all. By this route it is possible to follow a canal which avoids the very difficult country round Dijon, but on approaching Paris beware of the forests of wireless masts.

(Continued on page 1039)

Airisms from the Four Winds

"Graf Zeppelin's" Last Trip for the Season

THE German airship *Graf Zeppelin*, which left Friedrichshafen on October 24, with Col. the Master of Sempill on board, for South America, reached Pernambuco, Brazil, on October 27. Proceeding next day the airship flew on to Rio de Janeiro, where she arrived on October 29, and after a short stay started on the return flight to Germany—concluding the ninth and last round trip of the season. Pernambuco was reached on October 30, the departure being made the same day, and the *Graf Zeppelin* was due back at Friedrichshafen today, November 3. It is of interest to note that all these trips to and from Brazil—with one or two slight alterations—have been carried out according to schedule. And yet there are still some who hold that "airships are of no use!"

Air Girls' Trip to the Cape

ON October 26 Miss Joan Page, daughter of Sir Arthur Page, and Miss Durelle Sale Barker, left Heston in the former's "Gipsy Moth" on a holiday trip to the Cape. They reached Paris the same day, and proceeded to Marseilles next day. Tunis was reached on October 30, and they proceeded next day along the North African coast towards Cairo.

Another Aerial Survey in Greenland

LAST week we gave brief particulars of an aerial survey in East Greenland. We now give a few notes concerning further aerial operations in this part of the world. Two Danish expeditions have been working on the East Coast of Greenland this summer, and have made use of seaplanes for mapping out unknown country by means of air photos. The expeditions were under the leadership of two eminent Danish Polar explorers, viz., Dr. Lauge Koch, who worked in North-East Greenland assisted by two seaplanes, and Dr. Knud Rasmussen, who used one seaplane in South-East Greenland. The seaplanes were lent by the Danish Navy Air Branch and were Heinkel monoplanes, fitted with Armstrong-Siddeley Jaguar engines. All three engines were lubricated with Castrol "R." The seaplane base was on the coast, where was to be found a stretch of water free from drifting ice on most days. The land rises almost immediately from the coast to a maximum height of about 3,000 metres (equal to 10,000 ft.), the inner part of Greenland being covered by a huge ice cap. The survey was made at a height of 4,000 metres (13,000 ft.), and the temperatures experienced were from -20 deg. F. to -40 deg. F., whereas at the base of the coast the temperature might be as high as 60 deg. F. It was practically impossible to land on the ice inland, as the surface might be treacherous,



A LeO AUTOGIRO: An artist's impression of the little side-by-side two-seater which is now being built under licence in France by the Lioré & Olivier firm. The machine, which is fitted with a Pobjoy engine, will be exhibited at the forthcoming Paris Aero Show.

and fortunately no landings had to be attempted there. The surveys of the North-East expedition covered a distance from South to North of about 300 miles, viz., from 72 deg. latitude to 77 deg. The seaplanes were brought up with the old-type ships used by the Danish State's Greenland Trade Monopoly for communication with the various Greenland Colonies. When the expedition had finished its work, one of the seaplanes, piloted by Lt. Petersen and carrying Dr. Lauge Koch as passenger, was flown from Greenland to Iceland, a water hop of more than 500 miles. The two other seaplanes were sent back by ship in the usual way.

Von Gronau Off Again

THE German airman, Herr von Gronau, who was engaged on a flight round the world in a Dornier seaplane, was able to resume his flight after his forced landing off Burma, and reached Baghdad on October 30.



ANOTHER GREENLAND AIR SURVEY: One of the Danish Heinkel seaplanes referred to above.

AIR MINISTRY RESTRICTIONS

OUR Editorial Comment in the issue of FLIGHT of October 20, 1932, on the very severe restrictions imposed, particularly in connection with experimental flying, by the recently-issued Air Navigations Directions, 1932 (A.N.D.11), has brought forth a large volume of correspondence, which indicates that the views we expressed are shared by a large section of the aviation community, and that A.N.D.11 is regarded as being in the nature of the last straw which breaks the camel's back. The restrictions and limitations with which all flying is hedged around have been growing steadily during the post-war period, until they now seem to have reached proportions which threaten seriously to hamper all further progress.

We have not the space to publish this week all the letters on this subject which have reached us, but the following are typical of the general attitude.

Mr. E. C. Gordon England, who was among the earliest British pilots and aircraft designers, and who now holds a prominent position in the Vacuum Oil Company, as well as being chairman of the British Gliding Association, writes as follows:

"Your Editorial on A.N.D.11 in your issue of October 20 is a timely one. The powers possessed by the Government over the regulation of aeronautical experiments are very wide. As a matter of principle, one is inclined to say dangerously wide.

"The powers conferred quite unintentionally upon the authorities may be used to the lasting detriment of the British aircraft industry, although those responsible for carrying them out are administering them sincerely and with a desire to help.

"In my view, it puts too great a strain and responsibility on the officials of the Air Ministry and makes demands upon them for a sagacity and vision which it is quite unfair to expect, for to carry out these regulations without falling into a serious error at some time or another would need divine, not human, intelligence.

"I am one of those who believe that the regulations which have been imposed on British aviation since the war have been, in the main, satisfactory. There seems little doubt about it that the restrictions they imposed prevented the development of a large number of wild-cat schemes for the creation of unsatisfactory aircraft in the optimism and enthusiasm which was general just after the war.

"British aviation has now been taken through its babyhood and childhood stage, and the measures which have proved temporarily excellent may now become dangerous.

"With the accumulated knowledge and experience and the sense of responsibility which is general now with those engaged in aviation, an increasing amount of decontrol should be exercised, forcing the aircraft interests more and more to rely solely upon their own efforts. Thus giving free play to invention, intellect, intelligence and enterprise and so enabling the British aircraft industry to forge ahead and maintain a dominant lead in what I submit, sir, is bound to be the world's greatest industry.

"Those who imagine that we have reached anything like finality in aviation design are merely misleading themselves, and they may mislead others.

"One cannot put the terrific responsibility of shaping our course on to a few splendid officials, however able and far-sighted they may be. It is a matter of history that many of the world's greatest inventions and technical advances have been brought into being by those at variance with the technical authority of their day.

"We are bound to be up against vast competition throughout the world in the near future and the lead must logically fall to that country where invention and initiative is least fettered."

The following letter has been received from *Mr. W. O. Manning*. Mr. Manning is, like Mr. Gordon England, one of the pioneers of British aviation. In the very earliest days of flying he was engaged on aircraft design, and produced, in collaboration with Mr. Howard Wright, the Coventry Ordnance biplane for the Military Trials of 1912. As chief designer to the aviation department of the English Electric Co., Mr. Manning designed large flying boats, and when the light plane movement first started in Eng-

land he designed the little "Wren" monoplane, which tied with the Shackleton-designed A.N.E.C. in the fuel consumption trials at Lympne. The "Wren" was fitted with an A.B.C. motor-cycle engine of 10 h.p. only, yet the "Wren" flew remarkably well. Mr. Manning's views on official restrictions are thus the result of a long and close association with British flying since its beginning. Here they are:

"FLIGHT has, in the course of a long and useful life, done many services to the cause of aviation. Not the least of these is the service it is now doing by dragging out into the light of day the requirements of A.N.D.11 with regard to the testing of new aircraft. It is definitely laid down as clearly as can be expected in any document which is written in what may be called 'officialese,' that the old rule by which uncertificated aircraft were forbidden to fly without 3 miles from an aerodrome has been cancelled, and that no such aircraft may be flown except with the special permission of the Secretary of State for Air.

"It is quite true that the old rule required modification; under it such uncertificated aircraft could be flown considerable distances over populous districts. This is clearly undesirable, but a rule authorising the use of certain specified aerodromes for this purpose, aerodromes only being selected when they were situated in open country, would have met the case.

"It has been presumed previously that the Air Ministry was concerned in safeguarding the interests of the general public and that it was to this end that its regulations were directed. As this laudable object could be attained in the manner suggested above, it would seem that there must be some other target at which the Ministry is aiming. Can it be that it is now concerning itself in the safety of pilots, and proposes to do so by preventing them from even attempting to fly any machine which does not possess official approval?

"If a doctor and his assistants desire, for the advancement of science, to experiment on themselves by injecting into their blood the bacilli of a disease, there is no Government department that steps in to prevent the dangerous experiment. If a Cambridge physicist makes experiments on atoms with ultra high voltage electric current, risking his life on the efficiency of his apparatus, there is no Secretary of State who can require his permission to be granted. Why, then, should the aviation world be singled out for this sort of mollycoddling?

"If a designer of a new type of aircraft chooses to risk his own life in taking the novelty into the air, why on earth shouldn't he? provided he does not endanger members of the general public. The machine may be a hopeless freak, but on the other hand may embody an invention of fundamental importance, and aviation is so young that there are without doubt many fundamental inventions waiting to be made. I do not think that any experienced designer looking at the first autogiro for the first time would have considered it as being otherwise than a hopeless freak, and I am certain that no Secretary of State for Air would consider for a moment giving such a machine his special permission to leave the ground.

"I cannot help thinking that this regulation is the result of the insidious Safety First propaganda which is being so extensively advertised. Certainly take all reasonable precautions, but if the early pioneers of aviation had adopted the maxim there would have been no such thing as aviation to-day. No pioneering flights, no ship voyages of exploration, would have been undertaken and the world would have been the poorer. It is fundamentally unsound to advocate that the most important thing in existence is human life and that it must be preserved at all costs.

"It must be the definite right of anyone to make a flight in any type of aircraft he pleases, however dangerous it may appear to be, provided only that care is taken to avoid risk to members of the public and their property. Regulations ensuring this can easily be drawn up, and I hope that FLIGHT will continue its agitation until the objectionable paragraph in A.N.D.11 is withdrawn."

Another reader of FLIGHT, who is well known to almost everyone who flies or who takes an interest in aviation, but who desires to remain anonymous, and whom we will therefore call "Mr. X," writes as follows:

"I should like to congratulate you on your very pungent criticism of the latest example of the Air Ministry's interference with the liberty of the individual, as instanced in A.N.D.11, Section VI.

"It is, indeed, preposterous that a person owning a very large estate, and being interested in aviation, may not follow his hobby to the extent of building and flying his experimental aircraft around his own estate without first obtaining the permission of the Air Ministry.

"It would almost appear that the latter is jealous of the success of that much-hated harridan D.O.R.A., who for such a long time has inflicted her ridiculous regulations on a long-suffering general public, and that the Air Ministry have determined upon an intensive campaign directed against the aviation public.

"It is most devoutly to be hoped that your editorial will have the effect of stirring up aviation circles and result in a combined effort being made to liberate civil aviation generally from the intolerant restrictions imposed upon it by what is after all primarily a military bureaucracy.

"I have just one criticism to make of your editorial. In the penultimate paragraph you cite an example of how this recent restriction may affect an 'approved' firm.

"In point of fact there is no change, the position for some time past having been that upon completion of an aircraft the 'approved firm' is responsible for recommending to the Air Ministry the issue of a C. of A. In order that the regulations may be met, it is necessary for the Chief Inspector of the 'approved firm' to satisfy himself by means of final inspection and flight trial that the aircraft is in a satisfactory condition and does in fact conform to type, and furnish a certificate to that effect.

"This inspection certificate must bear a date approximately corresponding to the date of application for C. of A., and therefore it is customary for the C. of A. to be applied for before the aircraft leaves the constructor's works.

"Even if permission could be obtained for a flight for the purpose of delivering an aircraft without C. of A. to the agent, the approved firm, or some other approved organisation, would have to carry out a further inspection and flight trial on the sale of the aircraft by the agent before the recommendation for issue of the C. of A. could be made.

"The present procedure is certainly detrimental to the interests of agents, as in many cases, owing to having new machines in stock, they have to sell a quite new aircraft which may have some months of its C. of A. already expired, and should the purchaser desire a full twelve months' C. of A., the only alternative is to apply for a renewal at a cost of £5 5s."

Mr. Alan Goodfellow, whose connection with aviation insurance places him in a position favourable for judging coldly and unemotionally the risks of flying, and who, through his prominent association with the Lancashire Aero Club since its formation, is intimately familiar with the practical side of private flying, has sent us the following brief note:

"I write to congratulate FLIGHT upon drawing attention to the drastic restrictions on private enterprise imposed by A.N.D.11. It would, in my opinion, be quite sufficient to give the Secretary of State for Air discretionary powers to prohibit the flight of any uncertified aircraft except over land or water belonging to, or leased by, the owner of the aircraft, in any case where a good cause was shown to apprehend unreasonable risk to property or persons of third parties. The fact that aircraft owners are already compulsorily liable for third-party damage, and that in the very near future compulsory third-party insurance may be introduced, also affords a sufficient safeguard for most purposes. If, however, restriction is necessary, it would be sufficient to make it a criminal offence to cause damage to third parties where it could be shown that the machine causing the damage was uncertified, and that its unairworthiness was a proximate or contributory cause of the damage."

From a reader whom we will call "Mr. Y" we have received the following mild criticism:

"Definitely, I go ninety per cent. with you, but I consider that in allowing loose persons whose qualifications consist of ownership of a machine and a recently-acquired 'A' licence, the State is doing something much more dangerous.

"An inferior pilot, with no engineering resources and

very limited development finance, establishes himself at an aerodrome, which, being licensed as a public aerodrome, is not preventable. He crashes—perhaps one can see it coming days beforehand—and there are two effects:

"1. The general adverse effect on flying. Nowadays I think almost negligible, in view of public appreciation of the amount of safe flying that does take place.

"2. Association of the name of the aerodrome (or club, or school) with the crash.

"In theory, no doubt aerodrome proprietors could make things difficult for this type of experimenter and send him elsewhere. In practice, no aerodrome turns revenue away, and very few aerodrome managers are competent to draw a line between the safe and the unsafe experimenter.

"I do not suggest elaborate control for the isolated case I am quoting, and on the contrary see in such control an opportunity for established interests to handicap, if not to make impossible, any radical development which might threaten their interests. Future policy might envisage a special form of licence which definitely earmarked (and recorded by means of registration of very distinct type) the experimental nature of the flying, but which was readily obtainable by anyone with any experience or real pretensions to carry on."

Mr. Lee Murray, who in collaboration with Mr. W. S. Shackleton is now running a very successful business as consulting engineers, particularly in advising on the suitability of aircraft types for Australian conditions, is an Australian pilot of high standing, and is in addition a qualified aircraft engineer, is not usually of the "dreamy" type, but in this instance A.N.D.11 seems to have had a rather peculiar effect on him, as he sets out in the following letter:

"I bought a copy of A.N.D.11 on Friday afternoon, and in the evening commenced a careful reading, with some rather rapidly-growing pleasure in the warmth of the fire. You must remember that it is impossible for me to translate the regulations in the light of any very extensive experience of their working, but in the small experience which I have had the officials of the airworthiness department are most helpful in their interpretation of the regulations. On the whole I think my opinion of them is scarcely worth writing about, but I would like to tell you something of my week-end.

"On Friday evening I had the most extraordinary dream, which you, as an interested student of psychology, may be able to throw some light upon. My wife was apparently extremely ill, and the nurse (fully qualified) had sent for a physician of great repute. On his arrival he telephoned for a surgeon of almost equal skill, and when he arrived the two of them borrowed my writing desk and commenced to fill in official forms at some length. Greatly mystified by this procedure, I somewhat nervously approached them and questioned them as to the necessity for this delay.

"They explained that the British Medical Association had decided that it would no longer recognise the right of qualified men to carry out operations on their own initiative, unless they belonged to an approved firm; unfortunately, the physician and surgeon belonged to two different firms, so that they were sending a description of the proposed operation to the authorising department of the B.M.A. for their approval. After all, the surgeon explained, we kill with the knife where you kill with the aeroplane, and we cannot have the whole responsibility on our own shoulders.

"In the meantime my poor wife was gradually slipping down-hill, and I cursed loud and long at this generation of spineless technicians. As the last curse echoed around the fireplace I woke up, wondering still in some anxiety if the approval could possibly arrive in time.

"It was a senseless dream—I can see that quite clearly now—for, of course, the medical people have certain qualifications which prove they are competent, and no one questions them unless the patient dies prematurely. This happens so seldom that no one dreams of interfering.

"A curious thing about this dream was that everyone appeared to be calling my wife 'Prosperity.'

"I cannot understand it, but perhaps you can help me, and I would much appreciate hearing from you."

"P.S.—The approval must have arrived in time, because I can remember now that a son called 'Invention' was born on Saturday morning. Of course, the Authorising Committee are such good chaps that the approval is almost always in time."

FIRMS DEALT WITH IN THIS SERIES.

Published, FLIGHT, Oct. 13, p. 989.

Armstrong Siddeley Motors
Armstrong-Whitworth Aircraft
Bristol Aircraft & Engines
Comper Aircraft
Gloster Aircraft
Napier Aero Engines
Phillips & Powis
Rollason, Muir & Rickard
Saunders-Roe Aircraft

Published, FLIGHT, Oct. 20, p. 993.

Blackburns

Aircraft Engineering Training

(Concluded from page 994)

THIS week we conclude our series of articles, giving information designed to help those who wish to obtain training in Aircraft Engineering, and particularly, training which will help them in obtaining a thorough grounding in manufacturing methods, leading eventually, to Ground Engineer's Licence examinations.

Rolls Royce

A.S.T.

Redwing

General Aircraft

Northern Air Lines

Short

Avro

In this week's article.

De Havilland

Supermarine

D.H. Technical School

Brooklands

Correspondence Tuition

DE HAVILLAND

The De Havilland Aircraft Co., Ltd., Stag Lane, Edgware, Middlesex

D.H.'s ARE well known for their pioneer work throughout the world in connection with light aircraft. Their "Moth" is probably more widely used as a training, privately owned, and club, aircraft than any other aeroplane. This has been built of both wood and metal, according to the employment to which it is put. Sometimes there is demand for an all-metal structure, in which case the fuselage is built up from welded steel tubing, while in other cases the wooden version is preferred wherein the fuselage is a boxed plywood structure. In both cases the wings have spindled spruce spars, built-up spruce ribs, and plywood covering. Other small machines emanating from this factory, which have gained world-wide repute are the "Puss Moth" and "Fox Moth," while the large 14-seater D.H. "Hercules" is used extensively not only by Imperial Airways, but also on the very successful air lines in Australia. The "Fox Moth" is worthy of special mention by virtue of the fact that, when fully loaded, it carries a greater load per h.p. than any other commercial aircraft. It is thus a most economical proposition for the small operator or for taxi services.

The works offer admirable facilities for trade apprentices. These boys do not necessarily qualify for ground engineers' licences, but are instructed on the lines of tradesmen. For those who have ground engineers' licences particularly in view, there is a very comprehensive scheme for student apprentices which is worked in conjunction with the D.H. Aeronautical Technical School. This will be dealt with under a separate heading. The company accepts boys up to the age of 16 for training as trade apprentices and the standard of education required is that of boys who have undergone a course of training in a junior technical school, or elementary schools where the curriculum provides for manual and practical work; those from secondary schools must show that they are mechanically minded and mentally equipped to undertake industrial employment. Six months' probationary period is allowed before the candidates are accepted for apprenticeship. Those selected are apprenticed until the age of 21 years, in the trade chosen. Trades for which these apprentices are accepted include engine fitting tester; tool maker; machinist; aircraft fitting and assembly, including process jig and template making; sheet metal worker, including jig making and setting up; and aircraft wood worker. Throughout all the above trades, selections are made to fill positions as inspectors, production planning staff, and foremen. Two scholarships are awarded annually admitting apprentices to the two years' course in the Company's Aeronautical School, such students being trained for their Ground Engineer's Licence "A," "B," "C," and "D." All apprentices must attend evening classes on the company's premises, where instruction is given in mathematics and mechanics, aerodynamics and aircraft performance calculation, aircraft drawing and design, aircraft and aero-engine construction, maintenance, and repair, air navigation, and meteorology. It will be seen from the above that superfluous theoretical tuition in other branches of engineering is eliminated and pupils can, therefore, advance more rapidly and obtain a higher degree of efficiency than is usual at most technical schools which cover a wider curriculum. The pay for apprentices ranges from 4s. 6d. per hour at 16 years of age to 8s. 6d. per hour at 20 years of age.

"Southampton" twin-engined flying boat has been produced in large numbers for the Air Force, both with a wooden and a metal hull, and in this boat many wonderful flights have been made, mostly in the ordinary course of service training. They also have on the stocks a large boat designed for Trans-Atlantic work, but work has been stopped on this owing to the policy of the Treasury which recently greatly curtailed the amount of money available for experimental purposes.

APPRENTICES, both premium and boy, are taken in their works, but at the present time it is not possible to take on any more and no applications are therefore wanted for some considerable time. Premium apprentices are graded according to the standard of their premium, such grading defining the various or individual departments to be covered during indentures. The higher grade boys go through all departments of the factory including the sales organisation, the itinerary being designed to fit such apprentices for higher posts in the aircraft industry. The number of such appointments is, however, strictly limited, consequently the number of apprentices taken in this grade is very small.

Boy apprentices are engaged for employment in individual departments of the factory, no generalised training being recognised. Any boys however, in this grade who show outstanding merit are given the opportunity of filling posts in the drawing office or any administrative position in the factory. In the case of both premium and boy apprentices a part-time educational scheme is included at the University College, Southampton. This involves a minimum of two whole days' theoretical training per week and scholarships of nominal value are awarded to those students who do well in their examination. The expense of this training is provided in part by the company.

D.H. TECHNICAL SCHOOL

The De Havilland Aircraft Co., Ltd., Stag Lane Aerodrome, Edgware

THIS school, which is run by the de Havilland Aircraft Co., offers technical tuition in aircraft and aero engine construction, maintenance, and repair, to students who are entering the industry as a permanent occupation, and exceptional facilities are included in the course of instruction for acquiring experience in the theory of flight and aircraft design. The courses are designed so that the pupils are in a position to pass the examinations for their ground engineer's licences in categories "A," "B," "C," and "D." Students are given an initial period of instruction in the technical school workshop, where they learn to use all the common tools, and also receive training under qualified instructors in the construction and maintenance of various types of aircraft and aero engines. During their course they have to pass through such workshops of the D.H. Aircraft Co. as may be considered necessary, besides the work they do in the technical school workshops. Under this scheme they are actually engaged upon work which is being utilised on production and which therefore passes through inspection. This is a very valuable feature of the course, and insures that the students are trained to a high degree of efficiency and accuracy.

ALL stages of treatment of materials and manufacture are taught and during the course they pass through the following departments:—fitters' shop, sheet metal shop, erecting shop, fabric shop, dope and paint shop, wood detail shop, wood and metal "Moth" and "Puss Moth" assembly shops, engine machine shop, engine test shop, jig and tool room, case-hardening and heat-treating department, inspection, test, laboratory, repair and service department, drawing office and, in addition, arrangements are made whereby students may obtain actual aerodrome experience with aircraft in service during the summer months. The scheme at the school embodies two courses,

SUPERMARINE

Supermarine Aviation Works (Vickers), Ltd., Southampton and London

SUPERMARINES are known the world over for their boats and seaplanes. Of the latter, by far the most widely talked about is, of course, the S. series of racing seaplanes, the final development of which, the S.6b, enabled us to win the Schneider Trophy for good and all. Their

the first being a two-year course for students aged 19 and over, the fee for which is 200 guineas, and the second, a three-year course for students aged 18 and over, the fee for which is 250 guineas. To meet the demand for instruction of engineers who may have had previous practical experience or of providing private owners who are desirous of assimilating a general knowledge of aircraft, the company offers shorter courses to suit individual cases, the fees charged for these are 60 guineas for six months, 35 guineas for three months, 15 guineas for one month, and 6 guineas for one week.

Under the supervision of the Board of Education and the Middlesex Education Committee, lectures are given in Aerodynamics and allied theoretical aeronautical subjects. Students' attendance at these lectures, held in the evenings on four nights per week, is compulsory.

BROOKLANDS

The College of Aeronautical Engineering, Chelsea, London, S.W.3, and Brooklands Aerodrome, Surrey

THE College of Aeronautical Engineering was founded for the purpose of furnishing a complete technical training with which to equip young men of good education for a career rising to administrative positions in civil and commercial aviation. The students pass through every phase of workshop practice from the mere filing of metal to advanced work on engines and aircraft, but at the same time they are given full instruction in the other aspects of their chosen vocation. They are instructed in air navigation, meteorology, aerodrome management, wireless lights, signals and control tower operation, organisation and control of staff, stores procedure, commercial practice and aviation law. From the moment students enter the college, the value of time and money is impressed upon them. They have to "clock on" as they would at any works; tool kits are issued to them, for which they are held responsible; materials are requisitioned in the usual works manner and they have to account for them. The college is affiliated to the Automobile Engineering Training College and the Brooklands School of Flying.

STUDENTS may enter the college from the age of 17 years upwards. They are required to enrol on a probationary term which must be completed before they can be accepted for the remainder of the course. Where it is evident to the Principal that a student is unlikely to reach the standard required, he is advised, quite frankly, to this effect. The registration fee of £1 1s. is payable on an applicant's name being put down for a probationary term. This is not recoverable, but is treated as a deposit on account of the first term's fee. The course for the college diploma has been designed to

provide students with the maximum amount of actual working experience on the same system as has been applied with such marked success for the automobile industry by the Automobile Engineering Training College. Examinations both practical and written are held at the end of each term and a report is sent showing the results of such examinations. The college year consists of four terms with a short holiday at Easter and Christmas and a general vacation of from two to three weeks during the summer term. The fees are payable in advance and include the use of tools, equipment, text books, drawing instruments, etc. For the course for the college diploma, 25 guineas is charged for the probationary term and 25 guineas for each of the nine subsequent terms. Where it is so desired, the fees for these nine terms may be compounded to a total one of 205 guineas conditional on prepayment of one sum. The college diploma is only awarded to those who have attended the college and the college aerodrome for a minimum period of 2½ years. They must also have passed through the following shops and have satisfied their instructors as to their ability in each of the following shops:— fitting, aero engine fitting, machine shop, materials (testing of), engine testing, carburettors, woodworking and pattern shop, foundry work, oxy-acetylene welding, electrical equipment, timbers, fabrics, dope shop, rigging, etc., instruments and compasses, daily inspections, overhauls for C. of A., final inspection for C. of A., drawing office. In addition they must have passed in the following theoretical subjects, aero engines, theory of flight, applied electricity, materials of construction, shop calculations, navigation and meteorology, aerodrome management, and finally have passed the D.A.I. examination for Ground Engineers' Licence "A" and/or "C." Run in conjunction with the college there is a very comfortable college residential hall situated at Wimbledon Park. Students may live there for 25 guineas per term, which fee includes breakfast and evening dinner, as well as all meals on Saturdays and Sundays.

CORRESPONDENCE TUITION

The British Institute of Engineering Technology, 306, Shakespeare House, 29-31, Oxford Street, W.1

The Technological Institute of Great Britain, 37, Temple Bar House, E.C.4

The International Correspondence Schools, Ltd., Dept. 182, International Buildings, Kingsway, W.C.2

Bennett College, Ltd., Sheffield

FINALLY, there are several colleges devoted to teaching by correspondence. The majority of these now have courses which cover every phase of aeronautical engineering, both on the theoretical and the practical side. Those who have not the time to attend colleges or works in person may therefore perhaps prefer to be taught by this medium, and no matter whether they aspire to an Associate Fellowship of the Royal Aeronautical Society, a Second-Class Navigator's Licence or a Ground Engineer's Licence, they should be able to find a course to suit them at one of these colleges.



New Approaches to Bristol Airport

PRESENT access to the airport at Bristol is gained by road on the far side of the airport to the town, the end where the first block of buildings, clubhouse, etc., have been erected. A new arterial road was commenced that passed the airport site on the town side (the opposite end to the present buildings) and had been completed as far as the airport itself when, owing to economy, work had to cease. It has now been decided by the Bristol Corporation that work shall be put in hand immediately to link up the present buildings with the new road and consequently a further road again is to be laid around the boundary of the airport estate and should be completed in a few months' time. This will make the Bristol Airport one of the most accessible in the country and literally within five to ten minutes by car from the centre of the city. On completion of this new road one will leave the city as at present by going out past the station and up over Knowle Hill, but instead of continuing along the main road to Whitchurch one will turn to the right shortly after leaving the tram terminus, up the new arterial road to the airport and then round the airport estate on this further new road to the clubhouse and airport buildings. This new road also opens up the estate and factory sites will be available adjoining it and the landing area as well.

Lloyd's Register

THE annual report, 1931-32, of Lloyd's Register of Shipping is just to hand. The period under review, which is for the year ending June 30, 1932, concludes the third year of the Society's participation in the inspection of civil aircraft. At the end of this period 300 aircraft were registered with the Society and during the course of the year 170 surveys for renewal of Certificates of Airworthiness, 60 for damage, and 100 Interim Surveys were carried out by the Society's Surveyors in the United Kingdom. Damage surveys were also carried out on behalf of underwriters in France, Norway, Greece, U.S.A., British Columbia, South Africa, Japan and Siam. With the co-operation of the Air Ministry eight of the Society's surveyors have completed a six-months' course at various centres and works, in order to fit them to take up duty abroad. Additional Non-Exclusive Surveyors for aircraft

have been appointed at Ottawa, Johannesburg and Delhi. As already mentioned in FLIGHT, a Joint Advisory Committee of Lloyd's Register and the British Corporation Register has been formed and the aircraft surveying staffs of the two registers have been amalgamated, with Mr. L. J. Hill as principle surveyor.

D.H. Aircraft for Iraq

THE de Havilland Aircraft Co. have received an order from the Iraq Military Authorities for six D.H.84's. These will be a military version of this interesting twin-engined (two Gipsy III's) civil aircraft, an order for which, as mentioned in FLIGHT recently, has been placed by Mr. Hillman, of Romford. That this aircraft should so readily be adaptable for either military or civil use speaks well for its future.

Russian Aircraft for Turkey

RUSSIA is said to be exporting seaplanes to Turkey, the design of these has not yet been disclosed, but if they are the product of the same factory as the new A.N.T.14, they should be very useful indeed.

Westland Aircraft Society

THE following is the lecture syllabus for the coming session of the Westland Aircraft Society, Yeovil Branch of the Royal Aeronautical Society and Institute of Aeronautical Engineers:—

1932

November 18.—"Electric Welding." Mr. Bainbridge, of British Oxygen Co.

December 1.—"Aircraft Development." D. Hollis-Williams, B.Sc., A.F.R.Ae.S., of Fairey Aviation Co.

December 15.—"Some Secrets of Bird Flight." Lt. Com. H. R. Graham, R.N.

1933

January 5.—"Bristol Aero Engines." A. H. R. Fedden, M.B.E., M.I.A.E., M.S.A.E., of Bristol Aeroplane Co.

January 19.—"American Aviation." Air Commodore J. A. Chamier, C.E., C.M.G., D.S.O., of Chamier Gilbert-Lodge & Co.

February 16.—"Aero Engine Development." Maj. G. F. Bulman, B.Sc., O.B.E., F.R.Ae.S., Air Ministry.

March 2.—"Aircraft Armament Installation, etc." Sqd. Ldr. C. Crawford, R.A.F., of A. & A.E.E.

March 16.—"Petters Oil Engines." Mr. Sammons, Chief Engineer of Petters, Ltd., Engine Works.

March 29.—"Air Flow." W. S. Farren, of Cambridge.



The "MOTH" IN BRAZIL: Inspecting the "Moth" Training Squadron of 15 machines, of the Brazilian Navy, at the Ilha de Governador, in the Bay of Rio de Janeiro. In front, from left to right, are:—Admiral Bento Machado, Capt. Raul Bandeira, Admiral Protogenes Guimares (Minister of Marine), Capt. Adalberto Nunes (Commanding Naval Aviation), Capt. Netto dos Reis, Lt. Araujo (Chief Instructor).

Improving Lateral Control

A SYSTEMATIC series of researches into the effectiveness of various lateral control devices has been begun by the American National Advisory Committee for Aeronautics. The results of the first series of tests, dealing with ordinary ailerons on rectangular wings, have now been published in Report No. 419, and the interesting disclosure is made that short-span, large-chord ailerons given upward deflection only, were the most effective in giving control above the stall, and that they gave yawing moments of the desired sign at all except small angles above stall. These short, wide ailerons had a chord 40 per cent. of the main plane chord, and a span of 30 per cent. of the semi-span of the wing. The report suggests that the most all-round useful aileron of those tested, at any rate for fairly small and light aircraft, would be of this type, and that the small adverse yawing moment found at small angles above the stall could be avoided altogether by permanently "rigging up" both flaps 10 degrees for neutral position. The yawing moments would then always be of the right sign. How powerful these short, wide flaps are is shown by the fact that they gave a rolling criterion at 20 degrees angle of attack 97 per cent. of the satisfactory rolling criterion at 10 degrees incidence. The forces required on the control stick at medium and low speeds were slightly more than double those for the standard ailerons with equal up-and-down deflection. (The scheming out of suitable mechanism to overcome this defect should not present insuperable difficulties to a clever aircraft engineer.—ED.)

Non-stop Flights of 13,000 Miles?

IN our esteemed French contemporary *L'Aerophile* of October, 1932, M. J. Galtier, who is in charge of aerodynamic design at the works of A. Bernard, publishes a very interesting article on the evolution of the long-distance aeroplane. He examines the improvements which have taken place since 1927, and comes to the conclusion that the ratio of gross weight to tare weight has improved by 18 per cent., the L/D value of aircraft by 23 per cent., airscrew efficiency by 18 per cent. and fuel consumption by 22 per cent. Looking to the future, M. Galtier estimates that with improvements which can be foreseen at present, it should be possible to extend the range of specially designed machines to 21,000 km. (13,000 miles). This, he points out, would correspond to a circuit of the world at the latitude of Denmark. The improvements taken into account in arriving at this estimate of future possibilities are as follow: Max. L/D increased to 19, a figure which the author considers possible with an aircraft of the tailless type, with retractable undercarriage. He thinks the ratio of gross to tare weight may be increased to 3, by the use of high-tensile steel in the structure, perhaps in the manner of Mr. Stieger's monospar wing, and by distributing the fuel tanks in the wing. Propeller efficiencies of the

order of 80 per cent. are envisaged, making use of reduction gearing and variable-pitch propellers. For the engine M. Galtier imagines a heavy oil type, with a specific consumption of 200 grammes per h.p. per hour (0.44 lb./h.p./hr.).

A Transatlantic Air Service?

A GREAT deal has been talked about the new flying boats which are said to be building for the Aeropostale service from Dakar to South America, but it is not generally known that there are people in this country who are believed to be contemplating the establishment of a British line across the same ocean. One firm, Atlantic Airways, Ltd., has already been formed, and a representative of a large financial group is shortly leaving for the West Indies, where it is understood he will look into the possibility of running flying boats across from this side of the world.

Oxford University Air Squadron

THE Oxford University Air Squadron, which has hitherto done its flying at Upper Heyford, in co-operation with the station flight, will today move to the new aerodrome at Abingdon. The Vice-Chancellor of the University will fly in one of the machines on the occasion of the move, and it is believed that this will be the first occasion on which the official executive head of the University has gone into the air. The flight will be met at Abingdon aerodrome by Lord Londonderry, Secretary of State for Air, and by Sir Geoffrey Salmond, commanding Air Defence of Great Britain.

New Director for Cirrus-Hermes

MR. C. S. NAPIER has joined the Board of the Cirrus-Hermes Engineering Co., Ltd., of Croydon, and will be associated with the designs department in the development of new engines. Mr. Napier, as is well known to our readers, owned a Westland "Widgeon" for many years, and is one of the keenest amateur pilots. He has competed consistently in all the most important air races, and this year his efforts were crowned with success by winning the Grosvenor Challenge Cup at the opening meeting of the Portsmouth Municipal Aerodrome on July 2. He now possesses a Hermes-engined "Avian." His early engineering training was received at Petters, Ltd., the well-known oil-engine manufacturers, of Yeovil, and the parent company of the Westland Aircraft Works. Subsequently Mr. Napier served for a period in the experimental engine shops of Mr. Ricardo at Shoreham; the knowledge thus gained will no doubt stand him in good stead in developing newer and better aircraft engines. He has for some time been busy upon a light aeroplane engine of his own design, and we hope that his new appointment will enable this engine to see the light of day. Coincident with this appointment, the company have increased their capital by the addition of £10,000.

AIR POST STAMPS

By DOUGLAS ARMSTRONG

Air Mail Week Stamp

With the idea of encouraging the development of the international air post service, which, in the words of the official announcement "has done much to sweep away the barriers of time and distance between the American nations," a special air mail week was held in Nicaragua from September 11 to 17 last. As part of the publicity scheme authority was given for the overprinting of 1,000 copies of the contemporary 15 centavos air mail stamp of the Republic with the inscription "Semana Correo Aereo Internacional 11/17 Septiembre 1932" in three lines of red type.

So great was the demand for this souvenir stamp that all were sold out within a few hours of being put on sale. About 600 copies are said to have been used upon letters despatched by air mail which left Managua on September 17 for the North, leaving only 400 available to collectors in mint condition, so that it should turn out to be quite a good thing.

The inevitable "errors" occurred in the overprint in the shape of "Aerreo" (in lieu of Aereo) on the 29th and 45th stamps in each sheet of 50, whilst the latter also contained an inverted "m" in "Septiembre."

Another Do-X Issue

The flying-boat Do-X is beginning to catch up with the *Graf Zeppelin* in the number of special stamp issues associated with its flights. Following on those from Surinam and Newfoundland a third is now reported from the Philippines where it is understood that six denominations of the ordinary current postage stamps of the United States dependency have been expressly overprinted for the purpose of a mail despatched by the Dornier craft. Full details are not yet available, but it is understood that the supply was a reasonably adequate one.

Latest from U.S.A.

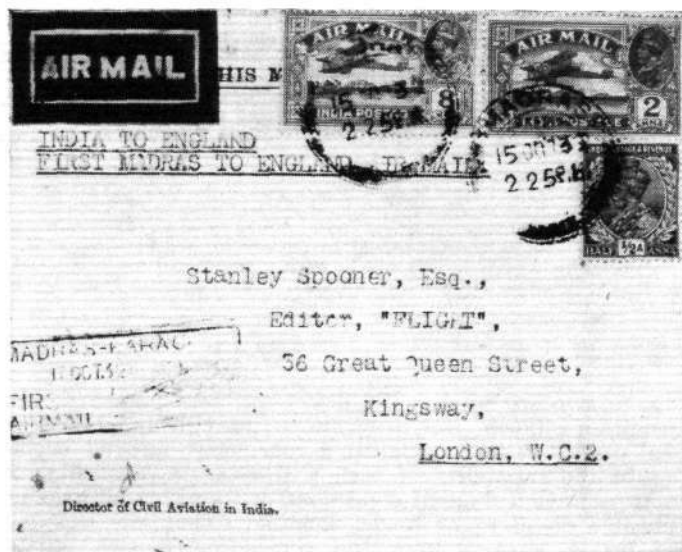
Due to increased rates for air mail matter which came into force recently, a new 8 cents denomination was added to the existing aero-stamp series on September 26, printed in olive-yellow in the same design as was the previous 5 cents value. As soon as the present stock of 10 c. air mail stamps has been exhausted it will be replaced by a new 13 c. denomination.

Dublin-Berlin Air Mail

Although no stamp was provided in connection with the first air mail flight from Dublin to Berlin on October 22, a distinctive cachet was applied to all letters despatched by the Dutch air liner on the outward journey. Owing to the short notice the mail carried was not a very large one, few collectors of first flight covers being in time to get in on it.

Air Stamp that Failed

Notwithstanding official repudiation of the abortive "stamp" prepared by Aerial World Tour Inc. of Min-



AN INDIAN COVER: A letter received from the D.C.A., India, per the first Madras-England through air mail.

neapolis, U.S.A., to which previous reference has been made in this column, desperate efforts are being made by a syndicate known as the Minneapolis Stamp Committee to unload supplies upon the collecting public. It is stated that some 25,000 copies of the label had been delivered and a proportion sold before notice of cancellation was received from the Newfoundland Government. Collectors and dealers all over the world are being circularised to purchase the balance of the stock at prices ranging from \$1 to \$1.15 c. on the strength of the fact that by some means or other two or three copies of the "stamp" have been passed through the post.

In face of the official attitude of the Newfoundland Government, which has demanded the return of all copies delivered to the promoters, it must be obvious that this unissued label is entirely devoid of legal status, and is at the best a purely private souvenir of a flight that failed. Aero-philatelists will be well advised to have nothing whatever to do with it.

London Air Post Exhibition

The idea of a London International Air Post Exhibition, to be held in 1934, is already taking form. Informal conversations have been held among a few interested parties during the last few weeks, and there is every prospect that a definite announcement will be forthcoming before the end of this year.

PUBLICATIONS RECEIVED

U.S. National Advisory Committee for Aeronautics Reports: No. 428. *Wind-Tunnel Tests of a Clark "Y" Wing with a Narrow Auxiliary Airfoil in Different Positions.* By F. E. Weick and M. J. Bamber. Price 10 cents. No. 429. *N.A.C.A. Apparatus for Studying the Formation and Combustion of Fuel Sprays and the Results from Preliminary Tests.* By A. M. Rothrock. Price 10 cents. No. 435. *Fuel Vaporisation and Its Effect on Combustion in a High-Speed Compression-Ignition Engine.* By A. M. Rothrock and C. D. Waldron. Price 10 cents. Superintendent of Documents, Washington, D.C., U.S.A.

Aeronautical Research Committee Reports and Memoranda: No. 1462. *Method of Testing Strength and Stiffness of Large Wing.* By I. J. Gerard. January, 1932. Price 6d. net. No. 1467. *Applications to Aeronautics of Achert's Theory of Aerofoils Moving at Speeds Greater than that of Sound.* By Prof. G. I. Taylor. April, 1932. Price 6d. net. London: H.M. Stationery Office.



NEW COMPANIES REGISTERED

KLEMM AIR SERVICES, LTD.—Capital £100 in £1 shares. Aeronautical experts and consultants, manufacturers of and dealers in aeroplanes, seaplanes, airships, parachutes, etc. Directors: Sir Richard G. D. Powell, Bart., 9, West Eaton Place, S.W.1 (director of Goodstein & Co., Ltd.); L. E. Jones, Red Cottage, Frinton-on-Sea, Essex; M. W. Delaforce, 19, Adam Street, Manchester Square, W.1 (director, Goodstein & Co., Ltd.). Solicitors: Evelyn Jones & Co., 7, Laurence Pountney Hill, E.C.4.

AIRCRAFT & GENERAL FINANCE CORPORATION, LIMITED. Capital, £100 in £1 shares. Objects, to aid, finance and promote the businesses of the construction and manufacture of aeroplanes and airships; and the development and maintenance of aerial transport and communications throughout the world; and to carry on the business of bankers, capitalists, financiers, etc. Directors: J. D. Akers, 352a, King's Road, S.W.3, gentleman; H. Wagstaffe, Warnford Court, E.C., stockbroker. Solicitors: Swann, Hardmann & Co., 10, Norfolk Street, W.C.2.



AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. (The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

APPLIED FOR IN 1931

Published October 27, 1932

- 28,188. FIAT SOC. ANON. Devices for controlling engines of multiple-engined aeroplanes. (381,337.)
- 29,801. W. BOEHM. Landing-lamps for aircraft. (381,359.)
- 32,856. A.T.S. Co., LTD., and J. D. NORTH. Metal aircraft components. (381,389.)

Published November 3, 1932

- 12,157. SOC. ANON. MOTEURS À EXPLOSION POUR AVIATION, MARINE ET AUTOMOBILES. I.C. engines with radially disposed cyls. (381,535.)
- 22,309. A. H. F. T. VALDEZ. Variable-pitch or reversible screw propeller. (381,648.)
- 31,063. SCHNEIDER ET CIE. Carriages or mountings for anti-aircraft guns. (381,745.)
- 32,576. W. C. OCKER. Apparatus for blind flight instruction. (381,755.)
- 34,825. H. C. A. POTEZ. Anti-vibratory mounting for i.c. engines. (381,781.)

Published November 10, 1932.

- 19,261. FAIREY AVIATION Co., LTD. and D. L. H. WILLIAMS. Variable-pitch propellers. (381,919.)
- 19,584. A. A. LANZAROTTI-SPINA. Variable-pitch screw propeller. (381,936.)
- 20,315. SIR W. G. ARMSTRONG WHITWORTH AIRCRAFT, LTD., and H. N. WYLIE. Sheet metal structures. (381,959.)
- 20,330. F. DUNCANSON. Variable-section wings for aircraft. (381,962.)
- 22,538. W. KIDDE & Co. INC. Extinction of fires on aircraft. (381,998.)